TECHNOLOGY DEPT.

NATIONAL PETROLEUM NEWS

August 20, 1941

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AUG 22 1941
DETROIT

Small Refiners May Share in Doubling Of Capacity for 100-Octane Gasoline

Oil Co-ordinator Ickes has stated independents should be included in proposed program to build new plants financed by RFC money, the government to contract for the entire output at prices which will amortize the plants in reasonable time 7

Severe Road vs. Laboratory Tests of Lubricating Oils

Fleet tests by oil company under severe conditions disclosed that oil temperatures were below the controlled temperatures of their laboratory methods R267

Advances in Refining Research To be Presented in ACS Papers

New developments in alkylation methods, lubricating oil testing and methods of analysis of oils are among subjects featured on the program of the coming meeting of the Petroleum Division of the American Chemical Society R258

"Roughened" Bearing Surfaces Found to Improve Lubrication

Microscopic irregularities left on main and crankpin bearing surfaces thought to act as tapered oil grooves, providing better lubrication at point of heaviest load than surfaces with mirror-like finishes. Roughening of bearings adopted as standard practice in one automobile plant R262

High Oil Yields By Catalytic Hydrogenation of U. S. Coal

78-160 Gals. (20% gasoline, 70% heavier distillates, 10% residuum) per ton of coal as mined, secured in experimental plant of Mines Bureau ... R271

REFINING TECHNOLOGY EDITION

FAST FUEL OIL DELIVERY

Fig. 189-G

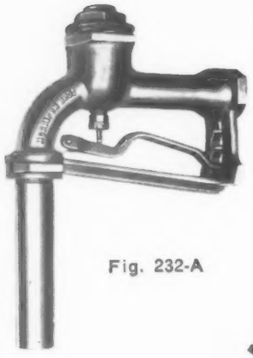


Fig. 232-A

Fig. 224

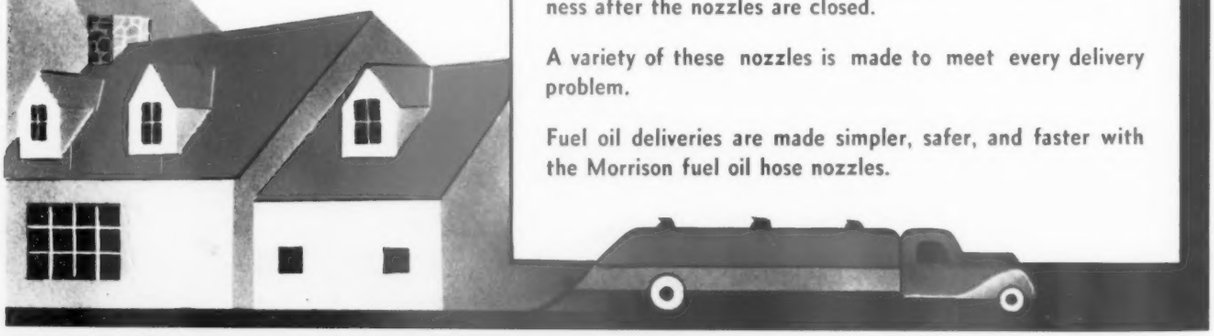
Fig. 189-F

Morrison fuel oil hose nozzles are noted for their speed of delivery and sure tight closing action.

Light, convenient, and easy to manipulate, these Morrison self-closing nozzles are popular with fuel oil delivery men. The drivers like the smooth action and the clean cut tightness after the nozzles are closed.

A variety of these nozzles is made to meet every delivery problem.

Fuel oil deliveries are made simpler, safer, and faster with the Morrison fuel oil hose nozzles.



MORRISON BROS. COMPANY

OIL EQUIPMENT HEADQUARTERS

DUBUQUE, IOWA

COMING MEETINGS

AUGUST

Mississippi Oil Exposition, Yazoo City, Miss., Mon.-Fri., Aug. 25-30.
Kentucky Petroleum Marketers Assn., 11th Annual Golf Tournament, Ashland Golf Club, Lexington, Ky., Wed.-Thurs., Aug. 27-28.

SEPTEMBER

American Chemical Society, Chalfonte-Haddon Hall, Atlantic City, N. J., Mon.-Fri., Sept. 8-12.
Oil Trades Assn. of New York, Sports Day, Pelham Country Club, Pelham Manor, N. Y., Tues., Sept. 9.
National Petroleum Assn., Hotel Traymore, Atlantic City, N. J., Wed.-Fri., Sept. 17-19.
Society of Automotive Engineers, National Tractor Meeting, Schroeder Hotel, Milwaukee, Wis., Thurs.-Fri., Sept. 25-26.
New Jersey Oil Trade Assn., Fall Golf Outing and Dinner, Braidburn Country Club, Madison, N. J., Thursday, Sept. 25.
Michigan Petroleum Assn., Fall Convention, Park Place Hotel, Traverse City, Mich., Thurs.-Fri., Sept. 25-26.
National Lubricating Grease Institute, 9th Annual Meeting, Stevens Hotel, Chicago, Ill., Mon.-Tues., Sept. 29-30.

OCTOBER

West Virginia Oil & Natural Gas Assn., Annual Convention, Clarksburg, W. Va., Wed.-Thurs., Oct. 2-3.
Thirteenth Boston Conference on Distribution, Hotel Statler, Boston, Mass., Mon.-Tues., Oct. 6-7.
Twenty-Eighth National Foreign Trade Convention, Hotel Pennsylvania, New York, Mon.-Wed., Oct. 6-8.
National Safety Congress, Stevens Hotel, Chicago, Ill., Mon.-Thurs., Oct. 6-9.
Texas Mid-Continent Oil & Gas Assn., Beaumont, Tex., Tues.-Thurs., Oct. 9-11.
National Dixie Distributors, Inc., Hotel Morrison, Chicago, Ill., Mon.-Tues., Oct. 13-14.
National Oil Marketers Assn., Hotel Morrison, Chicago, Ill., Mon.-Tues., Oct. 13-14.
Indiana Independent Petroleum Assn., Fall Convention, Hotel Severin, Indianapolis, Ind., Tues.-Wed., Oct. 14-15.
American Assn. of Petroleum Geologists, Pacific Section, Los Angeles, Calif., Thurs.-Fri., Oct. 16-17.
American Institute of Mining & Metallurgical Engineers, Petroleum Division, Dallas, Tex., Thurs.-Sat., Oct. 16-18; Ambassador Hotel, Los Angeles, Calif., Wed.-Thurs., Oct. 29-30.
National Stripper Well Assn., Annual Meeting, Mayo Hotel, Tulsa, Okla., Mon., Oct. 20.
Independent Petroleum Assn. of America, 12th annual meeting, Tulsa, Okla., Mon.-Wed., Oct. 20-22.
Society of Automotive Engineers, National Fuels & Lubricants Meeting, Mayo Hotel, Tulsa, Okla., Thurs.-Fri., Oct. 23-24.
Tennessee Oil Men's Assn., Fall Convention, Andrew Johnson Hotel, Knoxville, Tenn., Thurs.-Fri., Oct. 23-24.
Oil Trades Association of New York, Annual Banquet, Waldorf-Astoria Hotel, New York, Tues., Oct. 28.
Society of Automotive Engineers, National Aircraft Production Meeting, Biltmore Hotel, Los Angeles, Calif., Thurs.-Sat., Oct. 30-Nov. 1.
California Natural Gasoline Assn., Los Angeles, Calif., Fri., Oct. 31.

NOVEMBER

American Institute of Chemical Engineers, 34th annual meeting, Cavilier Hotel, Virginia Beach, Va., Mon.-Wed., Nov. 3-5.
Society of Automotive Engineers, West Coast Transportation & Maintenance Meeting, San Francisco, Calif., Wed.-Thurs., Nov. 5-6.
American Petroleum Institute, 22nd Annual Meeting, St. Francis and Palace Hotels, San Francisco, Calif., Mon.-Fri., Nov. 3-7.
Society of Automotive Engineers, National Transportation & Maintenance Meeting, Statler Hotel, Cleveland, Ohio, Thurs.-Fri., Nov. 13-14.

DECEMBER

New Mexico Oil & Gas Assn., Artesia, New Mex., Wed., Dec. 3.
Oklahoma Stripper Well Assn., Tulsa, Okla., Fri. Dec. 5.

JANUARY, 1942

Society of Automotive Engineers, Annual Meeting (and Engineering Display) Book Cadillac Hotel, Detroit, Mich., Mon.-Fri., Jan. 12-16.

NATIONAL PETROLEUM NEWS

AUGUST 20, 1941

NEWS

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THIS WEEK WITH NPN

"DATED"

"Fresh to the last ounce" is an advertising phrase that is now being used to describe—not the latest brand of coffee or bread—but gasoline! At least that's what one Connecticut marketing company is saying about its new "dated" gasoline. According to *Advertising Age*, copy in Connecticut newspapers emphasizes that due to the dating system the gasoline is not only pump-fresh but bulk-fresh as well. The advertising states that the company's gasoline is "bulk-plant fresh—never more than 10 days old."

GST

Consumer advertising of large marketing companies has done an abrupt about-face in the last few months. Heretofore such advertisements were aimed at selling gasoline—now in order to co-operate with the Petroleum Co-ordinator's request to conserve gasoline, this same advertising is urging consumers to restrict their purchases of petroleum products. Some marketers are finding means of creating goodwill during this emergency. One, for example, in posting the new station closing hours, stated: "Closed from 7 p. m. to 7 a. m. GST (Gas Saving Time)".

NPN MAILBAG

A hurry-up note from a reader who missed his NPN says humorously, "We did not get the last issue of NPN. We can't eat or sleep until we get it. Rush it out right away." Two colleges, one in Long Island and the other in West Virginia, ask for copies of NPN for their libraries used by students seeking help in vocational problems.

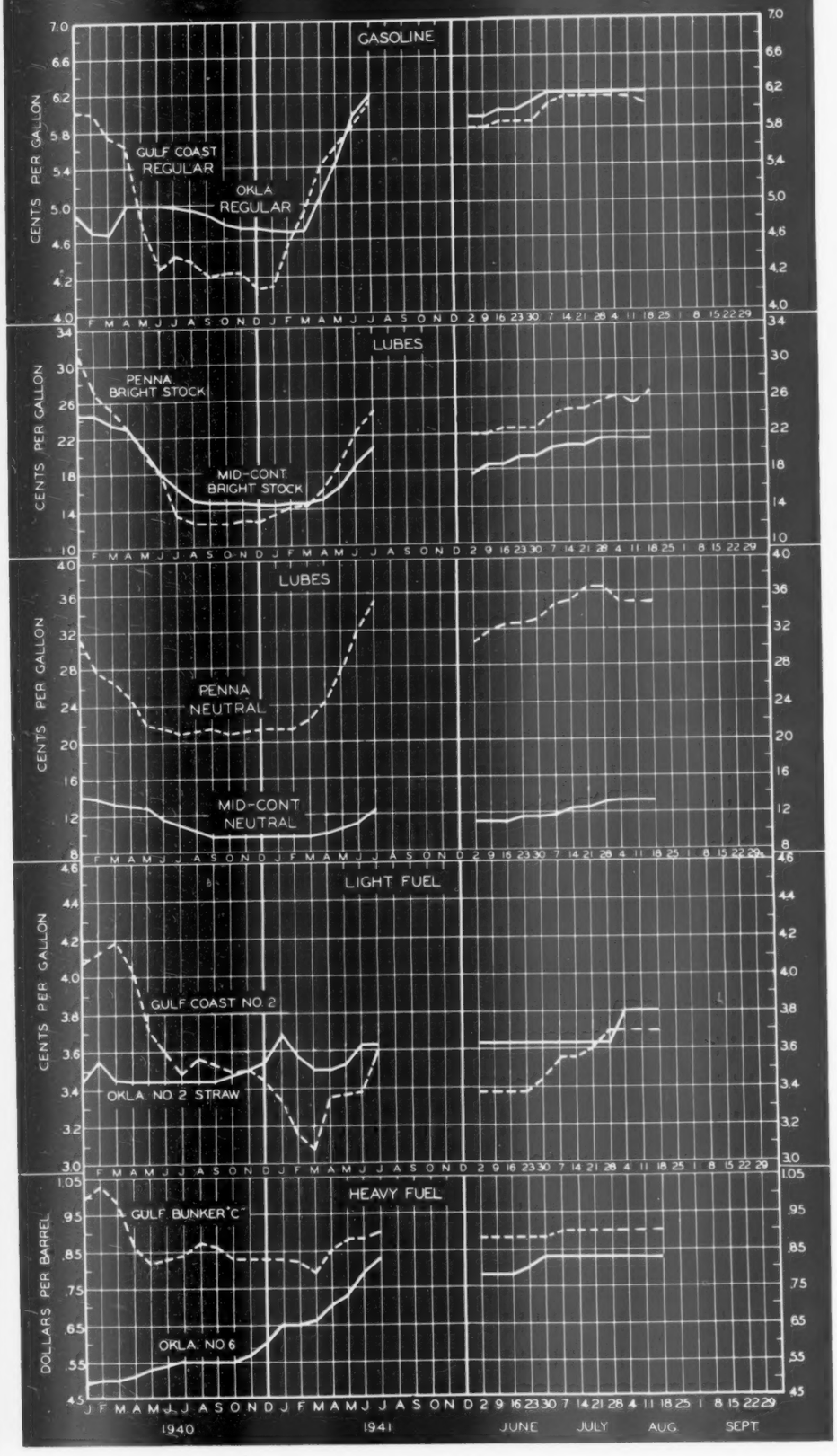
SALES AND SERVICES

Five companies in this issue feature services and products that improve station sales and services, while 4 others tell how their equipment improves deliveries from bulk plants. Four companies tell of the quality features of their products and 3 others offer money-saving equipment for use in bulk plants.

·STATISTICS·

REFINERY PRICES

Monthly prices in graphs are averages of daily high and low prices shown in Platt's Oilgram Weekly prices are averages of high and low prices shown in Monday Oilgram, and in NPN



N.P.N. Gasoline Index

	Dealer T.W.	Tank Car
	Cents per Gallon	
Aug. 18	9.96	6.70
Month ago	9.92	6.70
Year ago	8.87	5.35

Dealer index is an average of "undivided" dealer prices, ex-tax, in 50 cities.

Tank car index is a weighted average of the following wholesale markets for regular-grade gasoline: Okla., Mid-Western, W. Penna., Calif., N. Y. Harbor, Philadelphia, Jacksonville, Boston, Gulf Coast.

Crude Oil Stocks

(Bureau of Mines Figures; Thousands of Bbls.)

Grade or Origin	Aug. 2	Aug. 9	Change
Pennsylvania Grade	4,039	4,051	+ 12
Other Appalachian	1,372	1,417	+ 45
Lima-Michigan	1,023	1,017	— 6
Illinois-Indiana	18,351	18,991	+ 640
Arkansas	2,272	2,288	+ 16
Kansas	7,801	7,541	— 260
Louisiana:	12,640	12,747	+ 107
Northern	4,302	4,341	+ 39
Gulf Coast	8,338	8,406	+ 68
Mississippi	2,071	2,090	+ 19
New Mexico	7,354	7,234	— 120
Oklahoma	55,714	55,362	— 352
Texas:	85,279	84,771	— 508
East Texas	21,287	21,122	— 165
West Texas	16,030	16,104	+ 74
Gulf Texas	24,304	24,619	+ 315
Other Texas	23,658	22,926	— 732
Rocky Mountain	15,916	15,992	+ 76
California	35,754	35,133	— 621
Foreign	2,949	3,311	+ 362
Total U. S. refinable	252,535	251,945	— 590
Heavy in California	10,477	10,604	+ 127
East Coast (at refineries)	*12,878	14,253	+1,375

*Revised.

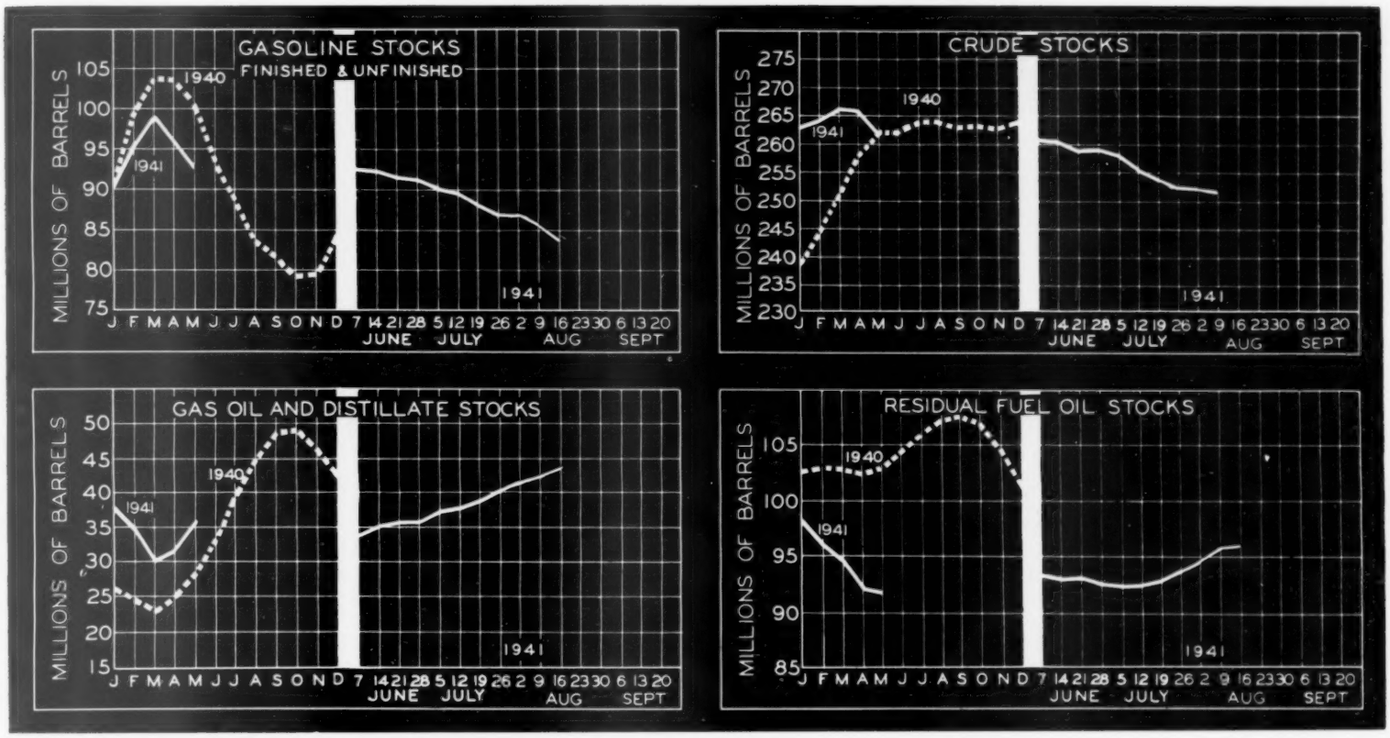
Dealer & Service Station Gasoline Prices 50 Representative U. S. Cities as of Aug. 1, 1941

	Dealers' Net Price (Ex Tax)	Indicated Dealer Margin (Ex Tax)	Gas' Tax (Inc. 1.5c Federal Tax)	Service Station (Inc. Tax)
	(Cents per Gallon)			
Portland, Me.	9.6	3.4	5.5	18.5
Manchester	10.6	3.4	5.5	19.5
Burlington, Vt.	10.2	3.9	5.5	19.6
Boston	9.2	3.8	4.5	17.5
Providence	9.3	3.7	4.5	17.5
Hartford	9.9	4.1	4.5	18.5
Buffalo	9.5	3.5	5.5	18.5
New York	9.4	3.6	5.5	18.5
Newark	9.0	4.0	4.5	17.5
Philadelphia	9.0	3.0	5.5	17.5
Dover, Del.	9.5	2.0	5.5	17.0
Baltimore	8.75	3.05	5.5	17.3
Washington	9.0	3.5	3.5	16.0
Charleston, W. Va.	11.05	4.05	6.5	21.6
Norfolk, Va.	9.25	4.55	6.5	20.3
Charlotte, N. C.	10.9	4.0	7.5	22.4
Charleston, S. C.	9.75	3.75	7.5	21.0
Atlanta	10.5	4.0	7.5	22.0
Jacksonville	9.5	3.0	8.5	21.0
Birmingham	10.0	4.5	8.5	*23.0
Vicksburg	9.5	5.0	7.5	22.0
Memphis	9.75	4.75	8.5	23.0
Lexington	10.5	3.5	6.5	20.5
Youngstown, O.	9.5	3.0	5.5	18.0
South Bend	10.5	4.5	5.5	20.5
Chicago	9.6	3.0	4.5	17.1
Detroit	9.9	3.74	4.5	18.14
Milwaukee	10.6	4.3	5.5	20.4
St. Paul-Minneapolis	10.4	4.0	5.5	19.9
Fargo, N. D.	11.4	4.0	5.5	20.9
Huron, S. D.	10.8	3.7	5.5	20.0
Omaha	8.9	3.0	6.5	18.4
Des Moines	8.4	4.0	4.5	16.9
St. Louis	8.4	3.0	4.5	*15.9
Wichita	8.8	3.5	4.5	16.8
Tulsa	8.0	3.0	7.0	18.0
Little Rock	9.5	4.5	8.0	22.0
New Orleans	8.75	4.25	8.5	21.5
Houston	8.0	4.0	5.5	17.5
Albuquerque	10.5	4.5	7.0	**22.0
Denver	10.0	4.0	5.5	19.5
Casper, Wyo.	11.5	5.0	5.5	22.0
Butte, Mont.	11.5	4.0	6.5	22.0
Boise, Idaho	13.5	4.0	6.6	24.1
Salt Lake City	13.5	4.5	5.5	23.5
Reno, Nev.	12.0	4.0	5.5	21.5
Phoenix, Ariz.	12.0	4.0	6.5	22.5
San Francisco	10.0	4.0	4.5	18.5
Portland	10.5	4.0	6.5	21.0
Spokane	12.0	4.0	6.5	22.5
Average 50 Cities	10.04	3.83	5.95	19.82

*Includes 1c City Tax. **Includes 0.5c City Tax.

•STATISTICS•

Monthly stocks figures are actual as reported by Bureau of Mines. Weekly stocks figures are as estimated by American Petroleum Institute on Bureau of Mines basis


GASOLINE STOCKS
FINISHED & UNFINISHED
MILLIONS OF BARRELS
1940
1941
J F M A M J J A S O N D 7 14 21 28 5 12 19 26 2 9 16 23 30 6 13 20 27
JUNE JULY AUG SEPT
CRUDE STOCKS
GAS OIL AND DISTILLATE STOCKS
RESIDUAL FUEL OIL STOCKS

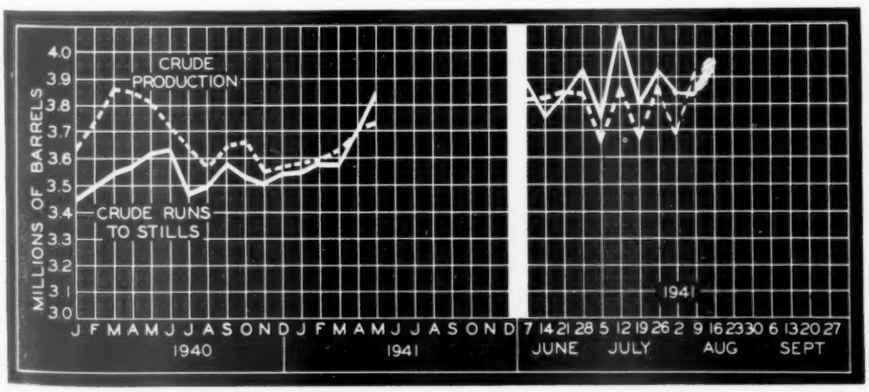
A.P.I. Report of Refinery Operations

(Figures in Thousands of Barrels of 42 Gallons Each)

Districts	Daily Average Crude Runs to Stills, Week Ended Aug. 16	Daily Average Crude Runs to Stills, Week Ended Aug. 9	Per Cent of Reporting Capacity Operated, Week Ended Aug. 16	Per Cent of Reporting Capacity Operated, Week Ended Aug. 9	Gasoline Production incl. Natural Blended, Week Ended Aug. 16	Gasoline Production incl. Natural Blended, Week Ended Aug. 9	Total Stocks Finished & Unfinished Gasoline, Week Ended Aug. 16	Total Stocks Finished & Unfinished Gasoline, Week Ended Aug. 9	Total Stocks Gas Oil & Distillates, Week Ended Aug. 16	Total Stocks Gas Oil & Distillates, Week Ended Aug. 9	Total Stocks Residual Fuel Oil, Week Ended Aug. 16	Total Stocks Residual Fuel Oil, Week Ended Aug. 9	Stocks Aviation Gasoline Included in Finished & Unfinished Gasoline Total, Week Ended Aug. 16	Stocks Aviation Gasoline Included in Finished & Unfinished Gasoline Total, Week Ended Aug. 9
East Coast	586	610	87.1	90.6	1,488	1,642	20,793	21,686	14,439	13,782	10,099	9,638	**East Coast**	
Appalachian	123	115	88.5	82.7	426	432	2,993	3,196	578	528	557	550	910	927
Ind., Ill., Ky.	631	601	99.4	94.6	2,385	2,270	15,127	15,442	4,871	4,638	4,135	3,929		
Okla., Kans., Mo.	296	300	88.9	90.1	1,141	1,157	6,622	6,757	1,915	1,797	1,975	2,002	**Interior**	
Inland Texas	136	143	81.9	86.1	604	627	2,177	2,145	433	424	1,294	1,318	1,201	1,184
Texas Gulf	966	957	96.7	95.8	3,015	3,073	11,361	11,975	6,274	6,226	7,837	8,326	**Gulf Coast**	
La. Gulf	154	147	110.0	105.0	315	391	3,324	3,183	1,656	1,631	1,755	1,788	3,375	3,546
N. La., Ark.	59	51	125.5	108.5	183	156	439	392	306	292	435	411		
Rocky Mt.	49	45	72.1	66.2	214	191	1,134	1,200	120	129	444	441	**California**	
California	573	526	80.1	73.6	1,476	1,349	14,011	14,136	11,972	11,759	65,760	65,484	1,852	1,755
Reported	3,573	3,495	91.3	89.3	11,247	11,288	77,981	80,112	42,563	41,206	94,291	93,887	7,338	7,412
Estimated Unreported	347	340			1,250	1,254	5,750	5,910	1,000	930	1,525	1,525	360	360
U. S. Total*	3,920	3,835			12,497	12,542	83,732	86,022	43,563	42,136	95,816	95,412	7,698	7,772
U. S. Total 8-16-40*	3,508				11,468		86,470		42,136		106,710		5,617	

*Estimated, U. S. Bureau of Mines basis.

U. S. Crude Oil Production



(American Petroleum Institute figures)

	WEEK ENDED Aug. 16 Barrels (Daily Average)	WEEK ENDED Aug. 9 Barrels (Daily Average)
Oklahoma	416,950	415,150
Kansas	250,700	225,250
Nebraska	6,600	5,950
Texas	1,445,900	1,439,500
Louisiana	322,900	322,300
Arkansas	74,200	73,600
Mississippi	49,600	47,850
Illinois	365,550	356,850
Indiana	18,700	20,250
Eastern (Ill. & Ind. excl.)	90,450	88,000
Michigan	42,950	41,900
Wyoming	80,850	85,700
Montana	20,300	20,400
Colorado	3,800	3,950
New Mexico	109,750	109,700
California	654,100	655,600
Total U. S.	3,953,300	3,911,950
Crude Imports	124,430	126,145
Total New Supply	4,077,730	4,038,095

Left to right—W. H. Ferguson, Frank Phillips, R. K. Davies, H. L. Ickes, A. L. Weil, C. F. Roeser, J. A. Brown

Regional Chairmen Talk with PCO Staff

The oil industry has a marvelous opportunity to demonstrate that it can make the joint federal-industry plan of solving petroleum problems work, and with a minimum of government direction, said Deputy Petroleum Co-ordinator Ralph K. Davies during the past week at a two-day Washington meeting of advisory chairmen of the five districts with Petroleum Co-ordinator Harold L. Ickes and the PCO staff.

General purpose of meeting was to define position of industry committees in relation to their work with PCO, to accomplish objectives outlined by President Roosevelt in establishing this office.

General chairmen of the five district committees are: John A. Brown, District 1; Frank Phillips, District 2; Charles F. Roeser, District 3; W. H. Ferguson, District 4 and A. L. Weil, District 5.

(For picture of chairmen of functional groups with general committee chairman and PCO's staff, see page 9).

NATIONAL PETROLEUM NEWS

VOLUME 33 WEDNESDAY, AUGUST 20, 1941 NUMBER 34

Want Small Refiners To Enlarge Capacity Of 100-Octane 'Gas'

NPN News Bureau

WASHINGTON, Aug. 18.—Oil industry is taking the initiative in doubling its refining capacity for 100-octane gasoline as quickly as possible, according to Petroleum Co-ordinator Ickes, who has indicated that he wants independent refiners to share in the program.

If independent refiners are unable to finance such projects themselves, then the PCO probably will arrange for loans from the Reconstruction Finance Corporation or other government lending agency. Deputy Co-ordinator Davies has already conferred with RFC Chairman Jesse Jones on this.

A plan may be worked out whereby the RFC loan for a 100-octane plant can be amortized within several years or less by the government contracting to buy the entire output at a price which will protect the refiner against crude price advances and other fluctuating costs. It may be possible also to work out a lump-sum payment of refining patent royalties and include this in total investment covered by the loan and amortization plan.

Present 100-octane refining capacity, according to Office of Production Management, is about 40,000 bbls. daily. But heavy purchases by the Russians, added to requirements of U. S. Army and Navy and the British, have brought total demand dangerously close to total output, according to indications.

Press-time Bulletins

CURTAILMENT BASIS TO BE CHANGED

NPN News Bureau

WASHINGTON—Commenting on an "equitable plan" for dealers to keep their stations open on a 12-hour basis, despite fact they will have 10% less gasoline to sell, a spokesman for Petroleum Co-ordinator's Office today said as stations make much of their profits from items other than gasoline, they

(Continued on page 10)

Gasoline 'Papoose' Urged To Aid Eastern Shortage

NPN News Bureau

WASHINGTON, Aug. 18.—To relieve the East Coast's gasoline shortage, Congressman Wright Patman, Dem., Texas, suggested to NPN that perhaps large gasoline containers—to hold perhaps 200 gals.—could be attached to motorists' cars traveling to East from states where there are refineries.

Idea would be that these containers be sealed, that the contents be delivered to certain points in the East Coast area where gasoline consumption is now being curtailed and that the containers would be returned for a refill by some yet unworked out plan. It was also thought by Congressman Patman that this gasoline "papoose" idea would be reason enough for Congress to eliminate present state weight-limit laws, on grounds of national defense.

'Gas' Supplies Cut To East's Stations

By Teletype
NPN News Bureau

WASHINGTON, Aug. 19.—Responsibility for prorating available gasoline supplies among Atlantic Seaboard's 10,000,000 motor vehicles has been placed squarely on shoulders of the oil industry and its station operators—but without a definite measure of how much they shall sell each customer.

On recommendation of Petroleum Co-ordinator Ickes, the Office of Price Administration and Civilian Supply issued a civilian allocation order Aug. 15 aimed at reducing gasoline consumption 10% below July demand in 17 eastern states and the District of Columbia. Because of exemptions granted to commercial vehicles, farm trucks and other essential services, however, the curtailment for the general public will be approximately 20%, according to Mr. Ickes.

In other words, farm trucks and other exempted consumers are entitled to 100% of their "necessary" requirements. Total deliveries, however, are cut 10% generally. So, the more gallonage represented by exempted consumers, the larger must be the percentage of curtailment among the non-preferred consumers.

To provide supplies for companies which have a large trade among truck operators and other exempted classes, the PCO has issued a recommendation that suppliers exchange, purchase or sell sufficient quantities among themselves to equalize as between themselves the percentage of curtailment which each must impose on its customers. District 1 (East Coast) marketing advisory committee was instructed to meet and determine the consumption represented by the exempt groups so as to set percentage curtailment figures for each particular area in the district.

Effective August 15

OPACS' order was released to the press about 6 p.m. (EST), Friday, Aug. 15, and was supposed to be effective immediately.

In a statement, issued simultaneously with the OPACS order, Mr. Ickes said that despite "disappointing results" from his pleas for voluntary curtailment, he was "still confident of the ultimate result." Mr. Ickes left for a month's vacation same day order was issued.

"Apparently, I have not been able to make out a clear and convincing case for economy in the use of gasoline," Mr. Ickes added, blaming Hitler for diversion of tankers which caused threatened oil shortage on East Coast.

Both the Ickes and OPACS statements warned that this was an "interim measure" with more drastic curtailment in prospect.

Provisions Cited

Briefly, the order provides: Suppliers are instructed not

(Continued on page 16)

Permanent Oil Co-ordinator Proposed in New Senate Bill

NPN News Bureau

WASHINGTON, Aug. 18.—Enactment of his bill requiring Petroleum Co-ordinator Ickes either to give up this appointment or relinquish all his other government jobs, including Secretary of the Interior, will be pressed by Sen. Charles O. Andrews, Dem., Florida, his office indicated here today.

Bill provides for creation of Office of Petroleum Co-ordinator to be under jurisdiction of a national petroleum co-ordinator, appointed by the President with the advice and consent of the Senate. Co-ordinator would not have any other office and would devote all his time to this office at a salary of $12,000 a year. As Secretary of the Interior, Mr. Ickes now gets $15,000 a year.

Blamed on 'Cattle Ticks'

An Interior department spokesman observed that the Andrews bill was introduced because Secretary Ickes refused to permit Florida state officials to kill tick-infested deer on an Indian reservation. All Indian reservations come under jurisdiction of Interior department.

To this charge, Senator Andrews' office stated: "That is Secretary Ickes' idea of the bill. Senator Andrews introduced his bill because he is interested in oil conservation. We have differed with Mr. Ickes on the deer, but that has nothing to do with this bill. Senator Andrews, in the 5 years he has been in the Senate has never resorted to spite legislation."

Could Issue Licenses

Under this bill, the co-ordinator would be empowered to "issue licenses to distributors of petroleum or petroleum products as a prerequisite to the distribution for sale by retail dealers of petroleum or petroleum products, revoke any license so issued, and limit or otherwise control, by means of priorities, rationing, or other

(Continued on page 8)

Permanent Oil Co-ordinator Proposed in New Senate Bill

(*Continued from page 7*)

appropriate means or methods, the use of petroleum and petroleum products." Violators would be subject to $500 fine.

Co-ordinator also would be able to make recommendations and suggestions "to any agency representing any state or any combination of states with respect to the production and conservation of petroleum and petroleum products, and to persons engaged in the production, distribution, or sale of petroleum and petroleum products, as to any action deemed necessary or desirable in order to insure the maintenance of a ready and adequate supply of petroleum and petroleum products for military and civilian needs."

Would Abolish Present PCO

Bill would abolish present Petroleum Co-ordinator's Office and would transfer all power, functions and duties to newly-created Office of Petroleum Co-ordinator.

Senator Andrews criticized Mr. Ickes for failing to ration gasoline in statement Aug. 15 to Senate, prior to OPACS' order, Aug. 15, curtailing deliveries 10%.

Andrews Bill (SJR 103) has been referred to Senate Lands Committee. The senator left Washington for Lands Committee hearings in West and is expected to return around Sept. 1.

Ickes Seeks 'Gas' Cut In Taxi Consumption

NPN News Bureau

WASHINGTON, Aug. 18—In an effort to cut gasoline consumption by taxicabs, Petroleum Co-ordinator Ickes today sent following telegram to mayors or commissioners of 17 eastern cities:

"In view of impending serious shortage of petroleum products along the Atlantic seaboard, I am asking you to take immediate steps to ascertain to what an extent the cruising of taxicabs in your city may be reduced without throwing too heavy a burden upon this method of transportation. I realize that this is largely a local question but I feel confident that the drivers of taxicabs, if appealed to, will be able to work out with you some measures that will result in the saving of large quantities of gasoline. The successful prosecution of the defense program of the nation calls for a very drastic cut in the amount of gasoline used in the Atlantic Coast states until we can get our petroleum transportation facilities back to normal."

Not Deer with Ticks on 'Em —Chips with Bugs on 'Em

NPN News Bureau

CHICAGO, Aug. 18—Sounds like chips with bugs on 'em, rather than deer with ticks on 'em.

This was one comment here today on Senate bill proposing permanent Office of Petroleum Co-ordinator, and which an Interior Department spokesman said was introduced by Florida's Senator Andrews because Secretary of Interior Ickes refused to let Orange State officials kill tick-infested deer on an Indian reservation.

The observer, speaking of "chips with bugs on 'em", had in mind the back door method of congress assuming control of the oil industry.

Ickes Names Pauley To Study Oil Plans Of Britain, Russia

NPN News Bureau

WASHINGTON, Aug. 16.—To study the oil situation in England, "in all its phases," Edwin W. Pauley, Los Ageles, president of The Petrol Corp., was en route to London this weekend.

Petroleum Co-ordinator Ickes announced at his press conference this wek that Mr. Pauley was acting as his special representative. Later, it was learned that this California oil executive will probably visit Russia and that he is expected to be gone about 3 weeks.

Tanker efficiency will be given particular attention by Mr. Pauley, it was reported.

Edwin W. Pauley . . . now in London as special representative of Petroleum Co-ordinator Ickes. May also visit Russia

An oil man since his graduation from the University of California in 1922, Mr. Pauley is also prominent in national and state politics, having supported President Roosevelt and Gov. Olson of California. He is vice-president of the Democratic National Committee and financial chairman of the party in the 11 western states. Gov. Olson recently appointed him a regent of the University of California.

Mr. Pauley organized the Petrol Corp. in 1929 after holding an executive position with the Eureka Oil Co.

To Confer with OPM On Sucker Rod Needs

NPN News Bureau

TULSA, Aug. 18.—Group appointed at meeting of sucker rod manufacturers and oil operators last week in Dallas to report on steel and alloy requirements for sucker rods for the period ending Dec. 31, 1942, will confer with Office of Production Management in Washington on Aug. 21.

Twenty-eight representatives of oil operators representing 57% of present total daily production in the U. S. and 10 sucker rod manufacturers representing practically 100% of sucker rod manufacturing capacity in the U. S. were present at the Dallas meeting called by American Petroleum Institute in response to request from H. LeRoy Whitney of the Alloy Steel Division, Iron and Steel Section, Office of Production Management.

Special group appointed at the meeting to report findings to OPM is headed by P. H. Bohart, Tulsa, of Gulf Oil Corp.

Place Oil Equipment Under Export Control

NPN News Bureau

WASHINGTON, Aug. 18—Gasoline and oil pumps are on a long list of commodities placed under export control today by Administrator Maxwell, who said his action was taken under instructions from President Roosevelt.

List also included: all metal drums and containers for oil (filled and unfilled), all oil well drilling apparatus and parts, kerosine and gasoline stoves and heaters, domestic and industrial conversion oil burners and oil-fired boilers, iron or steel body valves for oil, internal combustion engines, passenger cars, trucks, motorcycles, motor boats, internal-combustion marine engines, outboard motors, and agricultural petroleum oil sprays.

To Quiz Industry On Steel Drum Use

NPN News Bureau

WASHINGTON, Aug. 19—Next move in steel drum survey will be an inquiry to oil industry on uses it makes of steel drums, an Office of Production Management spokesman reported today, following meeting Aug. 18 of steel drum priorities committee headed by James MacPherson, OPM purchases official.

Questions asked oil industry will bear on relationship of steel drum uses to national defense and possibility of substituting wooden barrels for lubricating oils and greases, spokesman said.

OPM, meanwhile, expects within next few days to complete a tabulation of number of steel drums used by oil industry, as shown by questionnaires from steel drum makers. These figures together with those to be obtained from oil industry on drum use will provide basis for plate steel priorities for steel drum manufacturers, OPM spokesman said.

Anti-Trust Defendants Named by Gillette

NPN News Bureau

WASHINGTON, Aug. 18—Names of 25 oil company executives appear in a statement placed in Congressional Record of Aug. 14 by Sen. Gillette, Iowa, which purports to give the "anti-trust record" of the district industry advisory committees appointed by Petroleum Co-ordinator Ickes.

Statement declares that out of a total of 205 persons named on July 12 to the district committees, 134, or 65.4% are "persons individually, and persons connected with corporations or associations having been found violators or now being sued as alleged violators of federal anti-trust laws."

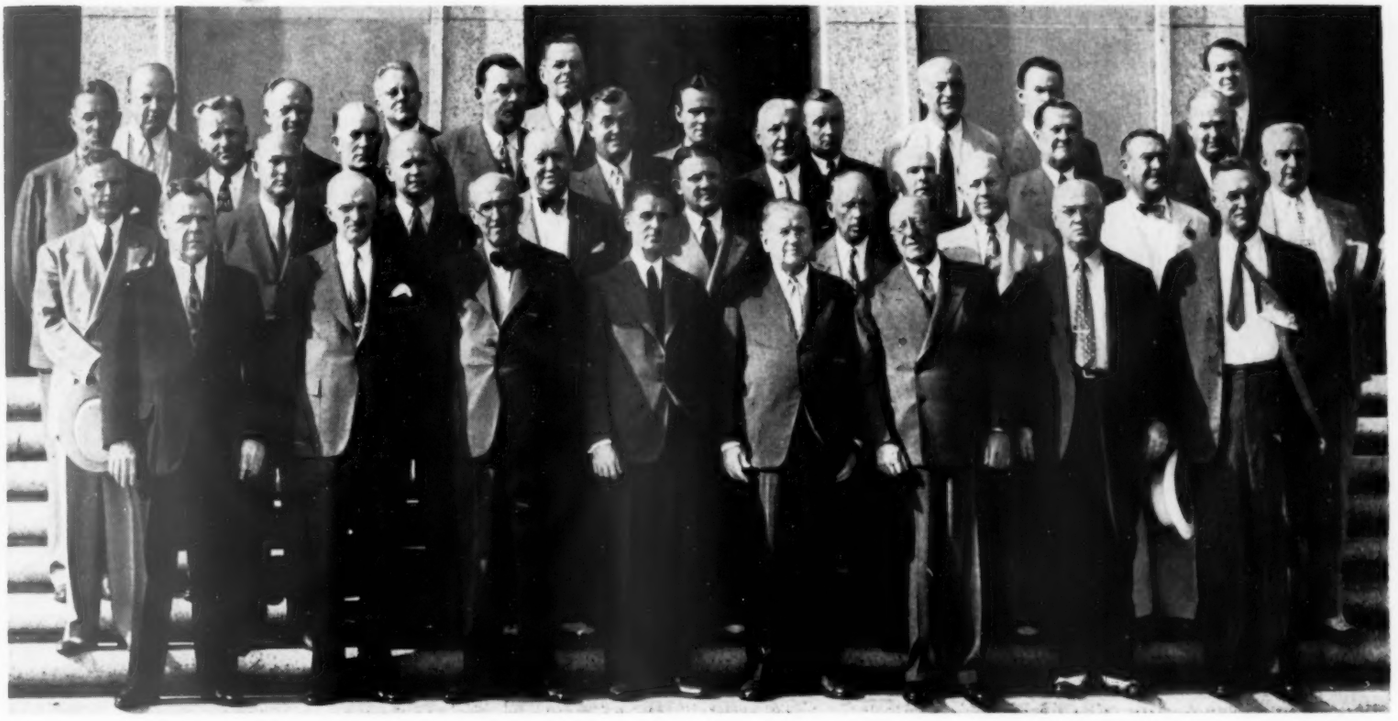
Aerial Survey Completed Of Defense Crude Line

NPN News Bureau

TULSA, Aug. 19—Aerial survey of right of way for the big national defense crude line that will extend from east Texas through Illinois to the East Coast has been completed by Aero Exploration Co. of Tulsa. Several sections of the completed maps are in the hands of participating oil companies and the job of "staking out the line" has begun.

The survey job will represent more than 1000 feet of aerial map picturing a 3-mile strip of land through which the line will pass. By using stereoscopic lenses, hills and ravines take on a third dimensional effect, indicating the logical route of the line.

Committee Chairmen Meet with Ickes and PCO Staff



Meeting with Petroleum Co-ordinator Ickes and Deputy Petroleum Co-ordinator Davies for a 2-day session in Washington last week, these advisory committee chairmen discussed methods of handling oil industry problems with the PCO staff. From left to right, they are: Back row—C. F. Smith, E. B. Swanson, W. L. Stewart, Dr. J. W. Frey, E. E. Pyles, H. A. Gilbert, C. S. Jones, R. E. Allen, P. G. Blazer, J. H. Marshall, E. G. Seubert, W. W. Gary, G. W. Holland, H. A. Yocom, W. S. Arnold. Middle row—J. S. Russell, J. W. Neuton, B. L. Majewski, J. W. Carnes, Henry Moyle, Otto Donnell, R. S. Shannon, R. B. Jones, W. S. Hallanan, C. S. Beesemyer, W. A. Jones, B. W. Musser. Front Row—H. C. Weiss, W. H. Ferguson, Frank Phillips, Mr. Davies, Mr. Ickes, A. L. Weil, C. F. Roeser

Ickes Favors Connally Act Continuation

NPN News Bureau

WASHINGTON, Aug. 18—Permanent "Hot oil" legislation has been urged by Petroleum Co-ordinator Interior Secretary Ickes in a letter sent Sen. Connally, Tex., under date of Aug. 15.

"I strongly favor the continuation of the Connally act and I hope that during this session of Congress you will again sponsor a bill to make the act permanently effective," Mr. Ickes wrote. Sen. Connally subsequently stated he was uncertain whether he would introduce such a bill late this fall or wait until next session, inasmuch as the Connally "hot oil" act does not expire until June 30, 1942.

Objections Subside

Belief that grounds for objecting to a permanent "hot oil" act no longer exist was expressed by Mr. Ickes. "In 1937 and again in 1939, when you attempted to have the act made permanently effective, the Senate readily agreed but your efforts were blocked because the House felt that, until the principal oil producing state should enact permanent conservation statutes, the Congress should continue on behalf of the federal government on a temporary basis only," Mr. Ickes wrote Connally.

Pointing out that Texas had made its conservation act permanent on July 2, Mr. Ickes declared there is no longer justification for opposition to a permanent "hot oil" law, because most major oil producing states now have permanent conservation laws.

A lesser objection to a permanent Connally act has been the belief it functioned only in the East Texas field, Mr. Ickes continued. But this is incorrect, he said, recalling that he, on May 26 extended the monthly reporting system heretofore applicable only to East Texas, to additional areas in Texas, New Mexico and Louisiana.

To Limit Oil Burner Installment Sales

NPN News Bureau

WASHINGTON, Aug. 18—Under proposed regulations drafted by Federal Reserve Board this past week, oil burner purchasers would be required to pay at least 15% down and the balance within 18 months. Aim is to curtail installment buying.

Down payment of one-third and balance in 18 months also would be required on sales of automobiles carrying less than 10 passengers, including taxicabs, aircraft, power driven noncommercial boats and motors for them, outboard motors and motorcycles.

Final regulations on installment buying are expected to be ready within next 2 months.

East Coast Fuel Oil Meet Expected in September

NPN News Bureau

WASHINGTON, Aug. 18—Problems of East Coast fuel oil distributors in present national emergency will be discussed within the next month when 36 distributors meet for an Atlantic Seaboard Oil Conference, Lester Scott, president of Loughborough Oil Co., stated today.

Officers of this group are W. H. Butler, Passaic, N. J., president of Home Fuel Oil Co., chairman, and Clyde Morrill, Boston, secretary of Independent Oil Men's Assn. of New England, executive director.

At present, Mr. Morrill is drawing up questionnaire aimed to find out fuel oil distributors' problems which will be discussed at this unscheduled meeting.

State Department Names Thornburg As Oil Consultant

NPN News Bureau

WASHINGTON, Aug. 18—Max W. Thornburg, newly-appointed States Department petroleum consultant, has been working in London with British oil supply authorities since the outbreak of the European War.

In his new government post, Mr. Thornburg will act as consultant to the State Department on international oil matters, and his duties, according to a State Department announcement, will consist of keeping the State Department apprised of the activities of the Petroleum Co-ordinator's Office and vice versa. Both State Department and PCO handle international oil matters, but the former deals with foreign governments, whereas PCO deals with U. S. oil companies operating abroad.

Leaves Bahrein

Mr. Thornburg has resigned his post as vice-president of Bahrein Petroleum Co., State Department reports. While vice-president of Bahrein Mr.

Max W. Thornburg . . . newly appointed State Department international petroleum consultant

Thornburg spent much time before the War in the Middle East, and was a member of the first party of white men to explore the Persian Gulf Shore of North Eastern Arabia. Previous to being named vice-president of Bahrein in 1936, Mr. Thornburg spent 16 years with California Standard in various capacities including manager of the Richmond refinery and chairman of the engineering board.

ICC Hearings Continue On Wider Truck Hauls

NPN News Bureau

TULSA, Aug. 19—Interstate Commerce Commission hearings on application by L. V. Hopkins Trucking Co. to widen its trucking operations to include the 16 states in which Cities Service Oil Co. markets will be continued early in September. (See NPN, Aug. 13, p. 17).

Testimony at the first hearing indicated desire by Cities Service to bolster its transportation facilities by use of trucks. Cities Service witness testified that an "acute shortage" of tank cars and possible requisitioning of river and lake barges would leave his company without adequate transportation facilities.

Customers Urged to Use Trucks on Short Hauls

NPN News Bureau

TULSA, Aug. 19—In an effort to obtain maximum service from its tank cars by reserving them for long hauls, Warren Petroleum Corp. is urging its customers to utilize truck transportation on short hauls from its natural gasoline plants.

Coming at the beginning of the peak season for natural gasoline, it was believed the move would preclude rental of additional cars that might be needed in other services.

So far trucking facilities for the short hauls have been ample to care for the change-over.

Press-time Bulletins

(Continued from page 7)

should plan to remain open as long as possible between 7 a.m. and 7 p.m.

While amount of gasoline dealers are now getting depends on their July sales, this basis will be changed and other PCO recommendations made as the need arises, spokesman said.

Meanwhile, a pro rata gasoline plan whereby service stations would allot a certain number of gallons to be sold each day and then close their pumps after selling this amount, was suggested here today by Harry Wainwright, research director of Retail Gasoline Dealers Corp.

* * *

FDR GETS COMPACT BILL

WASHINGTON—Cole resolution extending congressional approval of Interstate Oil Compact for two years beyond Sept. 1 has been sent to White House for President Roosevelt's signature, House enrolling clerk reported today.

* * *

TAX REVENUE DOUBLES

WASHINGTON — Federal gasoline tax netted $33,720,346 in July as against $17,595,718 in same month of 1940, according to Internal Revenue Bureau today. July lubricating oil tax collections totaled $4,107,325 as compared with $2,272,096 last year, while tax on pipeline transportation brought in $1,159,203 as against $1,690,853.

D. V. Stroop, A. P. I. Engineer, Speaks on Fire Prevention

NPN News Bureau

CLEVELAND, Aug. 19.—D. V. Stroop, New York, director of American Petroleum Institute's department of engineering, spoke today before the 69th annual conference of the International Assn. of Fire Chiefs. According to A.P.I. report, Mr. Stroop stressed the need for co-operation between oil men and fire officials especially with the present possibility of war damage to oil storage.

Mr. Stroop said that regional committees of the industry are already at work attacking problems created by potential bombing and sabotage. Fear, both on the part of oil-industry fire-protection engineers and fire chiefs often results in unsatisfactory conditions to both, he continued. One of the major fears—the belief that oil fires are apt to spread to adjoining properties — is unfounded, as less than 1% of such fires do damage to off-company properties, Mr. Stroop said.

A national program developed by the oil industry for safeguarding oil storage in national defense emergencies was outlined, A.P.I. reports.

Utah Dealers Urge 'Gas' Sale Curfew

SALT LAKE CITY, Aug. 18.—Petition urging that Gov. Maw indorse a 7 p.m. curfew on gasoline sales in Utah is being circulated this week among approximately 1250 Utah service station operators.

Move follows meeting of Utah Assn. of Petroleum Retailers here Aug. 14 at which 95% of attendance voted in favor of 7 p.m. closing. Reasons advanced include shortage of labor due to defense projects and re-opening of schools, high night overhead, lack of family association due to long hours and late night robberies.

C. W. Wall, executive secretary of the association said no real opposition to the 7 p.m. closing is expected, adding that the association plans a campaign to sell the move to the public.

Plans now include closing all Utah service stations from 7 p.m. to 7 a.m., as was done on the East Coast, with some stations on main highways distant from urban centers expected to remain open for trucks and tourists.

Co-operating in the program to conserve gasoline in the East, the Richfield Oil Corp. of New York is augmenting radio programs by distributing this special folder through its independent distributors and dealers. Folder contains driving and automobile upkeep information to aid motorists in saving gasoline

Oklahoma 'Gas' Use Up 31.77% in May

NPN News Bureau

NEW YORK, Aug. 16.—Oklahoma gasoline consumption in May totaled 50,014,000 gals. as compared with 37,956,000 gals. in May 1940, an increase of 31.77%, according to American Petroleum Institute. In first 5 months of 1941, Oklahoma consumption totaled 191,194,000 gals., an increase of 15% over first 5 months of 1940 in which period consumption totaled 166,261,000 gals.

Oklahoma increases raised daily average increase for the U. S. from 13.63% to 13.95% for month of May, and from 13.68% to 13.72% for first 5 months of 1941 as compared with same 1940 period. Oklahoma consumption figures were not available at time Institute issued its regular monthly report. (NPN, Aug. 6, p. 16.)

Ohio Standard Builds Unit For 100-Octane Gasoline

NPN News Bureau

CLEVELAND, Aug. 16.—Construction of an alkylation unit for manufacturing 225 bbls. daily of 100-octane aviation gasoline is under way at Toledo plant of Ohio Standard, company disclosed this week. Plant, for which certificate of necessity has been granted by National Defense Advisory Commission, is expected to be in operation by Nov. 1. Cost was listed by the NDAC at $574,000.

New Tanker Launched

NPN News Bureau

NEW YORK, Aug. 16.—The tanker "T. W. Drennan" with a carrying capacity of 28,571 bbls., was launched 3 months ahead of schedule by the Robinson, Taylor & Carson Shipbuilding Corp. of Camden, N. J. on July 20. The new vessel will be operated in coastwise service by the Spentonbush Fuel Transport Service Corp., it was announced by officials of the United Petroleum Transport Corp. of New York City.

Association Renamed

TULSA, Aug. 18.—With wider activities planned, the Gasoline Dealers Assn. of Texas has been renamed the Gasoline Jobbers & Refiners Assn. M. S. Stout of San Antonio continues as president of this Texas jobber and refiner group.

The dealers association initiated a petition to Price Administrator Leon Henderson asking for investigation of certain alleged marketing practices in Texas that threatened existence of independent dealers. This fight will be carried on under the name of Gasoline & Refiners Assn.

Army to Use 1 Type 'Gas'

NPN News Bureau

WASHINGTON, Aug. 18—All Army trucks and passenger cars will use an 80-octane all-purpose motor fuel on future maneuvers and in war-time, under an order just promulgated by the War Department and announced late last week.

All diesel-powered tanks will use a 50-cetane all-purpose diesel fuel. Tanks with Continental engines will use the 80-octane all-purpose gasoline, while those powered with Wright airplane engines will operate on 91-octane aviation gasoline.

All-Purpose Diesel Fuel

The new all-purpose gasoline will be the Treasury Procurement Division's V-80 motor fuel covered in Federal Specification No. VV-M-571b. The new all-purpose diesel fuel is covered in U. S. Army Specification No. 2-102A, proposed May 2, 1941, and just approved by Under Secretary of War Patterson. Aviation fuel for Wright-engined tanks is covered in Army-Navy Aeronautical Board Specification No. AN-VV-F-776.

New all-purpose diesel fuel also is to be used in the Army's stationary and marine diesel engines, except where unsatisfactory.

Exempted from being required to use the all-purpose motor and diesel fuels, are the equipment used by Army engineers in their rivers and harbors work, marine equipment of the quartermaster corps, and administrative vehicles while in use at Army posts, camps and stations.

Navy to Purchase 100-Octane 'Gas'

NPN News Bureau

WASHINGTON, Aug. 18.—Gulf Coast and California refiners receiving U. S. Navy awards for 600,000 bbls. of 100-octane gasoline will be asked to store it until adequate Navy storage is constructed, Navy Department spokesman said today. It is thought that companies may have to store it for about 6 months. This is schedule 600-8196.

Meanwhile, Navy has sent U. S. lease-lend bid invitations for 633,000 gals. of lubricating oil, 300,000 bbls. of grease (Schedule LL-900-6049) and 100,000 bbls. of distillation benzine. (Schedule LL-900-6054). Bids open 10 a. m. Aug. 26. Lube oil and grease are to be delivered f.a.s. New York harbor, while port bid upon for benzine is open.

Under a heading "additional products required," in Schedule LL-900-6054, Navy states: "From time to time, 'clean' tankers calling at the plants of the various contractors require 'dirty' products to completely fill the fore deep tank of the vessel. In order that products may be available for this purpose, bidders are requested to indicate in the spaces provided below what 'dirty' products are available at their loading facilities and the price which will be charged for each product. It is contemplated that the quantity desired of any one product will not exceed approximately 6000 bbls. per tanker." Loading port is also asked.

Types of products specified as follows:

Pool diesel oil (BPM D-3); pool marine diesel oil (BPM D-6); pool fuel oil (BPM D-4); and pool heavy fuel oil (BPM D-5).

Gulf Refiners Awarded British 'Gas' Bids

NPN News Bureau

WASHINGTON, Aug. 18.—Gulf Coast refiners received U. S. Navy awards for 475,000 bls. of 68 octane unleaded gasoline for British this past week. Awards were made with U. S. lease-lend funds on Schedule 900-5974 which originally called for 1,340,000 bbls. of vaporizing oil, 68 octane unleaded gasoline or burning oil. Lifting dates are Aug. 15-31; prices FOB Gulf.

Companies which received awards and amounts are: Texas, 80,000 bbls. at $2.539 per bbl. (6.05c per gal.); Pan-American, 100,000 bbls. at $2.625 per bbl. (6.25c per gal.); Maritime, 40,000 bbls. at $2.72 per bbl. (6.48c per gal.); Sinclair, 255,000 bbls. at $2.726 per bbl. (6.49c per gal.).

On Schedule 900-5961, originally calling for 600,000 bbls. of either vaporizing oil, 68 octane unleaded gasoline or burning oil for lifting from Aug. 5-15, following companies received awards:

Sixty-eight octane gasoline—Pan American, 100,000 bbls. at $2.625 per bbl. or 6.25c per gal; Sinclair, 160,000 bbls. at $2.726 per bbl. or 6.49c per gal. Burning oil—Jersey Standard, 500,000 bbls. at $1.68 per bbl. or 4c per gal.

Natural Gas Production Up 114,000 Gallons

WASHINGTON, Aug. 18.—Natural gasoline production increased 114,000 gals. to 7,133,000 gals. in June as compared with 7,019,000 gals. in May and 6,161,000 gals. in June, 1940, according to Bureau of Mines. Principal June increases were reported by Bureau as having occurred in the Texas Gulf and East Texas districts and Louisiana.

James MacPherson . . . named assistant director in charge of purchases for OPM's equipment and supplies branch

MacPherson Named Assistant to OPM

NPN News Bureau

WASHINGTON, Aug. 18. James MacPherson, San Francisco oil company official, has been named assistant director in charge of purchases of Office of Production Management's equipment and supplies branch.

Mr. MacPherson, on leave of absence as secretary-treasurer of California-Arabian Standard Oil Co., will be in charge of securing priorities for 12 industries, states OPM. These industries are rubber, wood products, protective coatings, marine oil, naval stores, paving and roofing materials, building materials, cement, structural clay products, hardware, heating and cooking apparatus, electrical machinery for industrial use, and steel barrels and drums.

Aviation 'Gas' Stocks Higher on Gulf Coast

Special to NPN

HOUSTON, Aug. 18.—Membership of Gulf Coast Refiners Assn. increased refinery runs 13,860 bbls. daily the last half of July with resultant increases in Aug. 1 stocks of aviation gasoline and high octane blending naphtha.

Increases sent aviation stocks up 16,953 bbls., to 393,794 bbls. and naphtha inventories up 61,352 bbls., to 91,633 bbls. Motor fuel stocks were reduced 22,613 bbls., to 1,432,045 bbls.

Crude runs the last half of July averaged 95,037 bbls. daily or 67.2% of rated capacity of 138,500 bbls.

Kerosine stocks Aug. 1 were 58,714 bbls. below mid-July figure; stocks of No. 5 fuel were reduced by almost half and Bunker C inventories increased 227,450 bbls. during the last half of July.

Pennsylvania Crude Prices Up 23 to 25c

NPN News Bureau

CLEVELAND, Aug. 16—Advances of 23 to 25c per bbl. in their postings were announced by leading purchasers of Pennsylvania grade crudes, effective Aug. 14. It was the fifth advance in 1941, and carried prices 83 to 85c per bbl. above end-of-1940 postings.

South Penn Oil Co. posted $2.98 for Bradford-Allegany oil, up 23c. Joseph Seep Purchasing Agency posted $2.98 for Bradford district, up 23c; $2.65 for Southwest Pennsylvania and $2.59 for Eureka (West Virginia), both up 25c. The Pennzoil Co. posted prices ranging from $2.86 to $2.91 for oil in National Transit lines, up 23c. Valvoline Pipe Lines met the foregoing postings, and advanced South Eastern Ohio (Buckeye) 25c to $2.55 per bbl.

Crude purchasing companies had no comment in announcing their increased postings.

Say Hike 'Justified'

There was a variety of schools of thought among refiners of Pennsylvania grade crude. Some hailed the advance as "justified". It will "bring out more crude, and that's what both the government and the industry need", remarked one refiner.

"Refinery runs have been exceeding production (of crude), and advance in prices was to be expected," said another refiner.

"These stripper well operators have got to have $3.50 per bbl. for crude if they are to make a profit on their investment, and I wouldn't be surprised to see a further increase in prices if we're to get all the oil possible," commented still another source.

Cite Lube 'Top'

Some refiners said the advance was a shock, especially since OPACS less than 2 weeks ago had requested a top of 33c for 200 vis. Pennsylvania neutral. "We can't have a top on one of the main products from our crude, and no top on our raw material costs," one refiner said.

"We get about 8 gals. of lube from a barrel of crude," said another refiner. "With a 25c per bbl. advance in crude, we should get 3c per gal. more for lubes, that is, if light products don't bear any part of the increased crude cost," he added.

There were some refiners who felt the light products, particularly kerosine and fuel oil, would have to bear the brunt of the increase in their crude costs. Several refiners had advanced

their light products quotations in amounts ranging from 0.125 to 0.5c by the end of the week.

Lose 'Gas' Business

"We can't do anything on gasoline until tank wagon prices in Pennsylvania and nearby states are advanced," remarked one refiner. "We're losing enough business to major company brands now," he added.

Refinery runs of Pennsylvania grade crude dropped 13.801 bbls. to 62,961 bbls. daily in the week ended Aug. 9, the National Petroleum Assn. reported. This was the lowest of any week since the week ended Jan. 4 when runs averaged 60,635 bbls. daily.

During the first 7 months of 1941, however, the N.P.A.'s reports show that refinery runs averaged 73,745 bbls. daily, as compared with daily average production of Pennsylvania crude as reported by the American Petroleum Institute of 71,250 bbls., indicating withdrawal of nearly 3000 bbls. of crude per day from storage.

Texas Tank Wagon Prices Hiked 0.5c by Gulf

TULSA, Aug. 18.—Advances of 0.5c per gal. in its tank wagon prices for third grade gasoline at most Texas points east of the Pecos River were posted Aug. 13 by Gulf Oil Corp. Advance covers most of Texas, with few exceptions.

Producer Sees Need For 25c Price Hike In Mid-Continent Oil

TULSA, Aug. 18.—Citing last week's 23 to 25c per bbl. advance in prices for Pennsylvania Grade crude oil, W. A. Goforth of Tulsa, president of Oklahoma Stripper Well Assn., announced this week a 25c per bbl. advance in Mid-Continent oil prices was not only justified but additional advances would be necessary to assure ample reserves.

If Pennsylvania's most recent advance is predicated on intense demand for lubricating oils, then Oklahoma operators should be participating in some of these advances, the Oklahoman said, adding that it "is no trade secret that much of the crude oil from which this 'Grade A' lubricating oil is made is produced right here in our own state." The Burbank, Oklahoma City and Seminole areas of Oklahoma contribute largely in supplying demand for '100% Pennsylvania' lubes, he stated.

'New Wells Needed'

Oklahoma is now producing very close to its maximum potential and the only way more oil can be secured is by more drilling, he continued. The top price of $1.25 now paid for Oklahoma oil does not justify drilling programs, since operators are barely breaking even on their settled production.

With operating costs estimated at $1.15 per bbl. of oil, the stripper well operator said it was evident all additional drilling must be paid for out of new capital instead of from current oil runs.

Many Oklahoma properties are being operated at a loss in an effort to keep the leases alive and protect large reserves underlying the properties, Mr. Goforth said. Without advances in crude oil prices, the law of economics will compel abandonment of these leases, with resultant losses of huge oil reserves, he continued.

Sees No Incentive

"The average oil man is loyal and wishes to co-operate with every phase of national defense," Mr. Goforth said, "but at the same time the best assurance of an ample supply of crude oil is to have an adequate price for the producer and so long as these inequities of price exist there will be little incentive on the part of the average producer to gamble new money in drilling additional wells."

A 25c advance in price will about absorb increased operating costs and put Mid-Continent producers on a "normal basis", the producer said, adding that additional advances should be made on a parity with advancing operating costs.

Co-ordinator Ickes May Speak At 39th Meeting of NPA

CLEVELAND, Aug. 18.—The National Petroleum Assn. has invited Petroleum Co-ordinator Harold L. Ickes to speak at the 39th annual meeting at Atlantic City, September 17-19.

Mr. Ickes has tentatively accepted. If he is unable to attend Deputy Co-ordinator Ralph K. Davies will speak, according to N. P. A. reports.

Other speakers will be announced later.

East Coast Stocks Of Gasoline Down

NPN News Bureau

NEW YORK, Aug. 19.—Stocks of finished and unfinished gasoline on the East Coast dropped 893,000 bbls. during week ended Aug. 16, to 20,793,000-bbl. total, American Petroleum Institute report today shows. End-of-week figure was 1,055,000 bbls. below stocks on comparable date last year. Gasoline production on East Coast area also declined, from 1,642,000 bbls. in week ended Aug. 9 to 1,488,000 bbls. in week ended Aug. 16.

Stocks of gas oil and distillate on East Coast continued upward trend, reaching 14,439,000 bbls. by Aug. 16, increase of 657,000 bbls. over previous week, but 1,013,000 bbls. below comparable 1940 date. Residual fuel stocks also increased, from 1,638,000 bbls. to 10,099,... ...ce tables below.

Barometer of East Coast Refinery Operations

East Coast Refinery Runs and Stocks

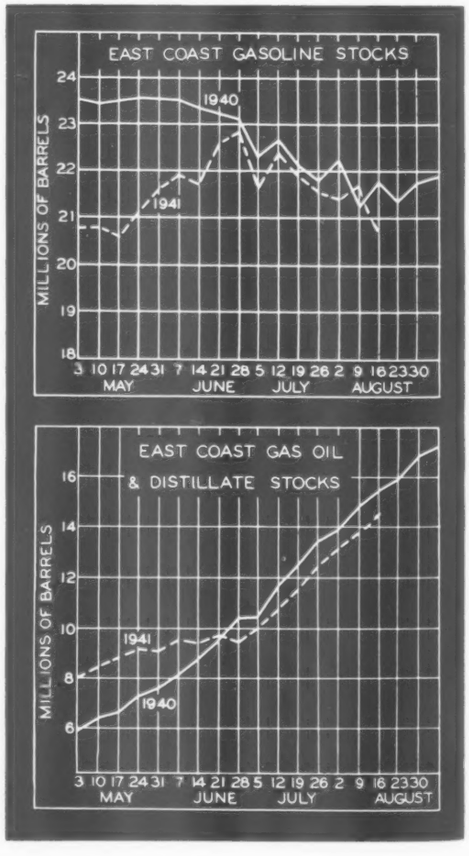
(From API current weekly figures, representing 100% of refining capacity. Nearest comparable week in previous year is used. Figures in thousands of bbls.)

Week Ended	Daily Avg. Crude Runs to Stills 1941	1940	Gaso. Prod. at Refineries 1941	1940	Stocks Finished & Unfinished Gaso. 1941	1940	Stocks Gas Oil & Distillate 1941	1940	Stocks Residual Fuel Oil 1941	1940
May 3	611	535	1,651	1,469	20,787	23,615	8,004	5,975	8,717	7,948
May 10	593	576	1,610	1,270	20,810	23,429	8,515	6,351	8,562	8,771
May 17	570	590	1,628	1,333	20,587	23,487	8,879	6,598	8,156	8,752
May 24	603	573	1,584	1,321	21,157	23,618	9,122	7,218	8,467	8,115
May 31	574	585	1,635	1,463	21,657	23,603	9,060	7,615	8,012	8,646
June 7	600	577	1,708	1,411	21,965	23,588	9,548	8,036	8,578	8,953
June 14	558	590	1,603	1,456	21,705	23,357	9,405	8,745	8,109	8,551
June 21	587	606	1,487	1,669	22,620	23,206	9,725	9,526	8,450	8,844
June 28	600	561	1,645	1,492	22,888	23,043	9,421	10,401	8,240	8,842
July 5	602	532	1,672	1,382	21,698	22,286	10,035	10,521	7,911	9,654
July 12	644	560	1,733	1,439	22,364	22,671	10,835	11,775	8,262	10,270
July 19	570	558	1,642	1,535	21,932	22,054	11,511	12,460	8,775	10,365
July 26	593	563	1,600	1,496	21,555	21,846	12,389	13,415	8,972	10,460
Aug. 2	593	560	1,773	1,492	21,438	22,221	13,069	13,982	9,989	10,298
Aug. 9	610	577	1,642	1,540	21,686	21,317	13,782	14,739	9,638	10,865
Aug. 16	586	603	1,488	1,594	20,793	21,848	14,439	15,452	10,099	11,044

Appalachian District Refinery Runs and Stocks

(From API current weekly figures, representing 91.0% of refining capacity; includes eastern half of Ohio. Nearest comparable week in previous year is used. Figures in thousands of bbls.)

Week Ended	Daily Avg. Crude Runs to Stills 1941	1940	Gaso. Prod. at Refineries 1941	1940	Stocks Finished & Unfinished Gaso. 1941	1940	Stocks Gas Oil & Distillate 1941	1940	Stocks Residual Fuel Oil 1941	1940
May 3	134	118	431	387	3,151	4,140	361	397	489	615
May 10	130	121	427	411	2,996	4,084	341	384	486	643
May 17	127	124	466	432	2,852	4,022	337	377	476	654
May 24	123	118	466	374	2,957	3,960	379	365	470	661
May 31	120	115	431	401	3,082	3,862	356	342	432	644
June 7	131	119	422	430	3,047	3,812	353	335	420	633
June 14	130	128	410	464	3,024	3,688	369	343	419	598
June 21	134	116	490	442	2,924	3,672	356	336	419	561
June 28	141	123	511	401	2,993	3,600	418	333	470	515
July 5	132	111	446	407	3,033	3,451	367	351	501	480
July 12	149	117	486	407	3,114	3,475	422	331	517	488
July 19	137	119	507	427	3,003	3,586	425	333	536	490
July 26	139	121	481	437	2,968	3,500	418	345	536	499
Aug. 2	137	115	458	403	3,091	3,459	461	411	505	461
Aug. 9	115	113	432	407	3,196	3,518	528	420	550	471
Aug. 16	123	121	426	456	2,993	3,428	578	447	557	491



THE Editor's PAGE

Readers Comments and Opinions will be much Appreciated by—WARREN C. PLATT, Editor and publisher, Penton Building, Cleveland, O.

Why Oil's Peace-Time Equipment Warrants High War Priority Rating If War Industries are to be Served

THE oil industry—every one in it—has greater obligations to perform these war days.

The industry must first supply all the petroleum needs of Army and Navy and of our Allies.

It must supply all the shops and factories with lubricants, greases and cutting oils, tempering oils and fuels and other products of many kinds; and supply gasoline, oil and lubrication services for private automobiles which are principal—sometimes the only—means of transporting defense workers to outlying plants.

The industry must also provide a rapidly increasing volume of motor fuel, oil and greases to the increasing 5 million and more motor trucks that are performing a variety of vital services to the country today, such as:

Transporting munition parts and raw material between factories;

Delivering finished war supplies;

Making it possible for the government quickly to move hundreds of thousands of new workers to new living centers close by the new munition plant;

Moving in increasing volume the necessities of the country's everyday living and thus freeing other means of transport to more bulk carrying;

Transporting the industry's own products of petroleum in greatly increasing quantities to the hundreds of thousands of points all over the country where oil and motor fuel are so necessary to this war movement; moving petroleum to points little thought of by the average man as being a supply point on the millions of miles of routes along which this country's necessities must travel.

IN ADDITION, the oil industry must provide its products of motor fuel, lubricants, heating oil, etc., to these hundreds of new settlements at munition centers, and to an ever-extending circle of homes and factories around our present manufacturing centers.

Not only must the oil industry move its own trucks with its own products to these new settlements but it must provide new local facilities—marine terminals, bulk plants and service stations—to break up the bulk shipments for delivery to the final consumer, be it factory or a worker.

In addition to all these new and increasing demands, the oil industry must furnish more petroleum products to the farmer, who is adopting more mechanized equipment, not only as a substitute for men drawn to Army and factories, but for equipment needed to make the farm more productive of food. Food requirements are daily increasing by reason of more men at work and because of this country's task of feeding more of its Allies.

And what of the private citizen and his peaceful use of his own passenger—or "pleasure"—car?

Even in peacetime, more than half of total passenger-car mileage, and three-fourths of the trips, were "necessity driving"—to work, business trips, etc. Now, in a warlike emergency, percentage of "necessary" driving is even higher.

There are uses of the passenger car, unquestionably, that are not important uses. Trips can be consolidated, errands can wait or be given up entirely. More of present community transportation can be used.

But any fair study of the private use of our passenger cars will show that today's living largely goes on by reason of that use. Our homes, built in the last 25 years, are not jammed with joint sidewalls, or only a couple of feet of space. We have spread our living to better and less expensive-to-keep homes out where there is grass and more fresh air; we have reached way beyond street cars; electric interurbans have been discontinued and steam roads have been unable to spread their single tracks wide enough to reach our new livings.

We have pushed our living beyond walking distance of our friends, beyond walking distance of the stores and far away from office and factory.

The fact is, the passenger automobile is just as essential a part of our living today as is the railroad, as is the water main and gas main, as were the sidewalks and trolley cars of 25 and 50 years ago.

Small Oil Man's Needs Rank with Those of Major Companies

ALL these things of war and industry and our daily American living are each an important part of the obligations that rest on the oil industry these war days.

And all these demands, small and remote though some of them may be even to the demands for supplies to keep the private passenger car running, are to be considered by the industry and the government authorities as the oil industry goes to Washington these days to get *PRIORITY ORDERS* for its own necessary equipment and supplies.

In these war days, and it will be more true in the war days to come, we think only in millions and billions: millions of men, tens of millions of articles, of pounds, of tons, and billions of gallons and dollars. But no matter how small the oil company that produces, refines, transports and distributes oil products, no matter how remote the stripper well or the 1 tank-car-a-month bulk plant, or the far service station, they all are highly essential parts of this war defense and war-living America. To slight or damage a small part of this living is to hinder America's necessary effort for this war defense.

The oil industry has to present this picture of WAR'S NECESSITIES first to its suppliers and then either directly or through them, to the Petroleum Co-ordinator at Washington in order to get the necessary equipment and supplies to keep the industry's vast machine in good working order, and in order to extend that machinery of production and refining to wherever new fields must be found, and to extend it to wherever new customers must be supplied with the industry's products.

This picture of WAR'S NECESSITIES applies to all the thousands of items the oil industry needs, most of which are

strictly of peacetime character and manufactured by many plants that may never even be offered a single war munition order no matter how long this war may run.

To build the immense new pipelines to carry war crude from the far Southwest to the East Coast refineries, and to construct more tankers for the same purpose, calls for details of equipment that are far off from one's conception of war's necessities. However it undoubtedly will be easier to relate these details to a War Priority Order than the same small pieces of equipment when asked for by a 10-well producer, or jobbing company or retailer. It may be difficult, indeed, for the small producer or marketer or retailer to prove that he needs a new valve or gasket, or electric motor or some other quite peaceful but most necessary type of equipment for "war purposes".

Yet a part of this nationwide living and war preparation of ours depends upon the renewal of even the most insignificant of these non-murdering gadgets.

That is the story the oil industry must present clearly and vividly, through its equipment manufacturers and through its own representatives to suppliers and to government, if the oil industry is to do its part in fulfilling its tremendous obligations toward War Defense.

The authorities at Washington are mindful of the industry's needs but it may be asking much of man to discover a "war necessity" in all of the many thousands of requests that will be made from now on from tens of thousands of oil men for parts to permit each to do his particular "war job". The presenting of these war needs, therefore, calls for the attention and skill of all oil associations and companies immediately.

Increased Consumption of All Products Requires More Equipment Renewals

THE oil industry, while needing quite a bit of new material for additional producing, transporting, refining and marketing capacity, also will need an even larger amount not only to keep its present machine in order but also to take care of the increased wear and tear on it due to having to produce, transport, refine and distribute increasing quantities of all products.

War's Needs Call for Most Modern and Cost-Reducing Equipment

BUT there is a further duty resting on every oil man, large company or small, and that is to see that the equipment is so maintained and is of such modern character as will not only handle the maximum number of barrels and gallons per pound of metal required, but the maximum quantity per dollar of cost. Saving in metal is most essential for the good of the whole country. It may be better to turn in some heavy, old equipment today for lighter and more efficient equipment, and give the government the benefit of the additional pounds of metal and the public the benefit of the saving in operating cost.

SAVING operating costs by keeping all plants in the best of shape and making renewals with the most modern equipment will probably not bring any reduction in prices to the consumer. Reductions in prices in these days of rising labor and other costs are out of the question. But greater efficiency in equipment that holds down or lowers operating costs will make it possible for the struggling oil man to absorb more of the rising costs than he otherwise could. No formula can be worked out to reduce a man's sales prices when he seeks a Priority Order for a new valve, but the ultimate saving to the public will be there, either in absorbed expense or, probably only in rare cases, the payment of excess profits taxes.

Competent observers of the steel industry still insist that when this Priority Order system has been worked out further, and when the panicky buying ahead by government and war industry—particularly by the government—has passed, there will not be the shortage of steel and many other metals for any important war or civilian use, as is now indicated by some statistics.

Silk Stockings Can be Forgone But America Cannot Walk or Freeze

BUT, however, the demands for metal may flatten out, the oil industry's supplies are not in the class of silk stockings and neckties. We can decorate our legs and our necks in wool and cotton, or leave them bare, without harm to ourselves or to our social order or with interference to prosecution of the war. But neither the oil industry nor the government can make America walk, or lug its own necessities on its backs with any shortage of petroleum without great hardship on all consumers and serious if not fatal hampering of the country's war effort.

The immediate need is, therefore, for every oil man as his necessities may arise, to get clearly in mind and on paper, the part that he, his plants and his equipment and his customers, play in our necessary war defense. Then to present that story to the necessary authorities for the purchase and installation of the most efficient equipment that he possibly can get in order to give his every effort to our War Defense.

Ickes' Inaugurates 'Open Door' Policy To Unite All Oil Men in War Effort

PETROLEUM Co-ordinator Ickes' demand of his advisory oil industry committees last week to, figuratively, throw open the doors of their meetings to the entire oil industry, is as constructive a move for real democratic co-operation with industry as we have heard from Washington in many years.

Co-ordinator Ickes did not qualify his words in any respect. He told the chairmen of all his committees over the country that there was nothing secret about anything they were doing, except of course if and when a real military secret might be imparted to some of them. The co-ordinator told these chairmen that they were to keep the oil industry fully informed of what they were doing, that this is necessary in order to get the co-operation of all in the industry, and without this complete co-operation the government's and the industry's effort for service to the country in this crisis could not be successful.

From the start of this joint effort of oil and government, the co-ordinator and his associates, both those from the government and those from the industry, have been exceedingly frank in discussions of their activities with those of the oil industry. But in some way some of the advisory committees seem to have gotten the impression that all matters were secret and refused to discuss with members of the industry and the oil press the simplest and most perfunctory actions that their committees have taken so far.

Secrecy of public matters—and industry activities are rightfully public to all in the industry — breeds suspicion and that brings lack of confidence. The industry's history shows that it has been cursed with far too much suspicion and lack of confidence and distrust. Considerable of that has been due to thoughtless failure of larger companies, particularly in the past, to keep their doors open, but it also has been due to unnecessary and unwarranted policies of secrecy by many interests in the industry.

Too many of the activities of the late P. & C. Committee of the ex-oil code were hidden from the industry's view, even though that committee undertook to formulate some utterly revolutionary changes in the oil industry. What information leaked out regarding these reforms did not help the standing of the committee nor of its individual members with the rest of the industry. The American Petroleum Institute has not been the power for industry leadership that it could be by reason of the unnecessary and actually utterly innocent "secret" discussions of its board of directors of 129 or so members and their often 100 to 200 or more "guests".

Oil men are elected or chosen to membership in these organizations and these committees, not because of the title that each individual may hold, or because of the bank account of his company. Rath

er, men are selected for their standing in the entire industry, because of the position that others in the industry grant them.

MEN ON the oil co-ordinator's committees have been carefully selected because they are typical of others in the industry and because it is thought that they can help lead others in the industry in these perilous times.

Disclosing frankly to the oil industry either directly by personal contact or through the oil press what goes on in these co-ordinating committees is entirely different from issuing a "statement" or a "press release" to the general public and on behalf of the co-ordinator. These committees in the first place cannot speak for the co-ordinator and his associates in any way. But they can tell to the oil industry by an "open door" policy what they are discussing and recommending upon behalf of their associates in the oil industry.

And these associates have a moral if not a legal right to know what THEIR REPRESENTATIVES are discussing and proposing. It is possible that some individuals or groups might differ with a committee and desire to present their views and further information to those at Washington to whom the committees have to report. That is the American privilege of these individual oil men and in no way should that privilege be abridged let alone denied them.

Events are moving most rapidly these days. The great mass of the American oil industry should not be required to wait for information as to what THEIR REPRESENTATIVES have discussed and recommended for a formal newspaper statement of the co-ordinator's office, and then have to read between the lines as to what their own representatives may have said. By that time it may be too late to change a decision that may have a vital and even adverse effect on some individuals.

The co-ordinator's office has selected excellent men to be on the industry's advisory committees. We understand those committees are not yet complete. Great care is being taken to make them entirely representative so more men will be added, we believe, especially from among oil jobbers, and an associated set-up in each territory will be provided for the retailers.

BOTH the government and the oil industry are launched on a great and terrifying undertaking. How well we proceed and succeed with that undertaking and how we and our businesses come out of that undertaking, will depend on the completeness of the understanding and co-operation of the whole oil industry as well as of the government.

Secrecy, beyond that absolutely necessary for truly military reasons, cannot but hamper if not even disrupt this co-operative undertaking.

Mr. Secretary Ickes and Petroleum Co-ordinator, you have done a far-seeing and highly statesmanlike thing in thus insisting on full knowledge to all members of the oil industry, as well as to such members of the public, of course, as may care to look. This, plus the quality of the associates you have selected from government and from the oil industry, are two right steps for effective effort on behalf of the petroleum needs of Democracy.

They Are Entitled to the Gasoline Regardless of Totalitarians

GOVERNMENT "requests" are still holding down East and Gulf Coast petroleum prices.

These official "requests" are still threatening to make the East Coast motorists walk or freeze this winter or both.

These OPACS ideas of "reasonable" prices are still making it impossible for the ingenious minds of the oil industry to bring more river and lake barges of all sorts and descriptions, more tank cars and particularly more truck transports and trucks into service to run petroleum products from mid-west marine and pipeline terminals and refineries to the East Coast.

When cities have had street car strikes, citizens have moved themselves and their friends to work and to play by their own private passenger cars and this on only a few hours notice.

When street car fares were considered too high and before the practice was forbidden, thousands of citizens nearly wrecked the street car companies by their volunteer "jitney" services.

When this country suffered its "prohibition era", despite the vigilance of tens of thousands of law officials, untold millions of gallons of liquor were transported to every town in the country.

CURTAILMENT of supplies to marketing organizations and their outlets in the east coast states, as is being done right now, by government order, is bound to develop at once an increasing "bootleg" gasoline and oil business.

Such a shortage—as at present ordered by the government—will bring inequalities in distribution as to force consumers to bid for some, at least, of their needs.

Certainly no man is going to suffer loss of any sales mileage on his car, make his family walk miles to a public conveyance, or freeze this winter, without bidding to the industry generally for some gasoline and heating oil.

When his bidding gets high enough—that is when his family has walked far enough and HIS house is cold enough—other people are going to rig up all sorts of tanks on trucks and even put drums and cans of gasoline and fuel oil in the back end of passenger cars and in trailers and come to this East Coast citizen's rescue.

And that East Coast citizen is going to murmur loudly "Thank God, there are ingenious and considerate Americans who don't give a hoot about a fool government", just as millions of us said during prohibition, for instance.

IF the price-fixing section of this government isn't going to use common sense then it is high time for the oil and trucking, barge and railroad interests to get busy and run petroleum products into the East regardless of cost and sell it at prices that will pay for that cost. If the price-fixing boys at Washington want to arrest any of these for keeping easterners from freezing to death, they will have to go to Germany to get a jury that will convict.

Let's waste no more time on totalitarian nonsense. We are still a free American people and our friends and customers and brother Americans on the East Coast are entitled to their oil and gasoline regardless of any socialistic and communistic experimenters at Washington.

Bird Shot for Harriet, As She Ducks for Cover

HERE is a wee bit of bird shot. That's all the target is worth.

Over in Educator Harriet Elliott's Consumer Division of OPACS are people who skip lightly by the truth, especially about the oil industry.

A few months ago they blasted the oil industry for "stealing" from the public with inaccurate gasoline pumps. It was quite a blast. A Weights and Measures' official's report was quoted based on an "investigation" in Los Angeles. The fact, which finally was discovered, was that the "investigation" and report were 25 years old. We had just begun to make a gasoline pump then. This truth, however, did not serve the purpose of the crusading Harriet, so it was not mentioned.

The other week this Consumer Division stretched the truth quite a bit in touting the "advantages" motorists got from North Carolina's gasoline grading law. This was a compliment by Harriet to her home state, we believe.

Then a few weeks back Educator Harriet's division acting allegedly on behalf of the Consumer, advised all motorists to change their lube oil "only seasonally" except when driving through dust, thereby casting aside the recommendations of automobile and oil lubrication engineers and putting thumbs down on the oil industry's campaign to "Change oil every 1000 miles".

Inquiry of Miss Harriet's division as to what data this revolutionary recommendation was based on developed, first, the statement that in a few days that data would be supplied. After repeated requests over many days NPN was informed that,—

1—It was none of NPN's business,

2—If the oil industry wanted to know "the industry" should write for it,

3—"The Consumer Division is under no obligation to submit proof of its statements",

4—"The government does not consider it necessary to present evidence",

5—If the oil and automobile industries say the seasonal change recommendation is wrong they should submit proof to contrary,

6—The data on which the recommendation is based was "assembled from government and trade sources" and a few minutes later the Consumer Division "spokesman" said: The data is "not available".

It is therefore rather obvious that either Educator Harriet's division hasn't any data at all and therefore is not telling the truth, or else it knows that what "data" it has is all wrong.

In the latter case the oil industry would be interested in knowing who fed Harriet this screwy dope?

'Gas' Supplies Cut To East's Stations

(*Continued from page 7*)

to deliver to resellers and consumers of motor fuel in any month more than 90% of deliveries during July, 1941. For Aug. 15 to 31, total may not be more than 45% of July deliveries.

Preferences are to be given to commercial vehicles, public health or safety vehicles, including doctors' cars, farm machinery and farm trucks, and vehicles owned or operated by federal, state or local governments. But deliveries to such preferred consumers are not to be in excess of their "minimum necessary requirements".

All other non-preferred uses come ahead of deliveries of motor fuel for operation of pleasure boats.

Other than this, station operators are forbidden to discriminate among their different customers and must spread the necessary curtailment proportionally among different consumers and different classes of trade.

Suppliers must spread deliveries proportionately over the month. Station operators must spread their deliveries throughout the day (the 7 p.m. to 7 a.m. ban on gasoline sales still applies).

Suppliers are required to keep, for at least 1 year, complete records of all deliveries of motor fuel, including price, quantity and use.

The curtailment order is applicable in Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, Pennsylvania, New Jersey, Maryland, Delaware, Virginia, West Virginia, North Carolina, South Carolina, Georgia, District of Columbia and in Florida east of the Appalachicola river.

Suppliers are Asked To Equalize Cut

Pertinent text of Recommendation No. 6 from the PCO, which "suggests" exchanges of supplies to equalize percentage of curtailment, follows:

"(1) All suppliers shall load, exchange, purchase or sell sufficient quantities of motor fuel to equalize as between themselves, the percentage of curtailment which each is required to impose upon different classes of trade, including other suppliers, service stations and consumers, such equalization, however, to be such that the sum total of all motor fuel supplied to the Atlantic Coast area shall not exceed that permitted in the aforesaid civilian allocation program.

"(2) For the purpose of accomplishing such equalization, the district Marketing Committee of District One shall estimate the percentage of the available supply necessary to fill the requirements for preferred deliveries as defined in section 1340.3 of the aforesaid civilian allocation program, in order to ascertain uniform percentages of curtailment necessary in particular areas, for all non-preferred and by service stations and to consumers by suppliers.

"(3) The uniform percentages of curtailment thus ascertained shall be adopted by all suppliers in making non-preferred deliveries to service stations and consumers, and differences, if any, between the sum total of any particular supplier's preferred and non-preferred deliveries above or below the curtailment in deliveries required of each supplier by Section 1340.1 of the aforesaid civilian allocation program, shall be adjusted as provided in Section 1 of this recommendation and Section 1340.6 of the aforesaid civilian allocation program.

"(4) Appropriate meetings of any suppliers operating in the Atlantic Coast area shall be held from time to time for the purpose of working out the physical and contractual details and arrangements necessary to carry into effect the foregoing recommendations."

Ickes Explains Background Of Curtailment in the East

"The rapidly developing shortage of petroleum products in the highly industrialized Atlantic Coast States, a shortage that, unless immediately abated, will gravely jeopardize our defense efforts by impeding the manufacture of goods and implements essential not only to the embattled nations that we are seeking to aid but to our own country as well.

"For today industry requires, no less than armies, air forces, and navies, tremendous quantities of petroleum products for its operation. Industry, especially those industries engaged in making ships and airplanes, guns and ammunition, tanks, and equipment of all kinds, must be kept moving in high gear, and they cannot be kept moving, in the existing circumstances, while private yachts, on pleasure bent, continue to move as usual. Pleasure as usual is no more possible when civilization itself is at stake, than is business as usual.

Consumption Up 8%

"I have sought repeatedly to impress on the people the gravity of the impending shortage on the East Coast. Only a failure by the public to appreciate the real situation can account for the fact that, in the week ending Aug. 8, deliveries of gasoline by 17 major suppliers in the East Coast area increased 8%. These deliveries went up 9,490,962 gallons in the week or from 119,128,228 to 128,619,190 gallons in the 17 Eastern States, where there is a developing deficiency.

"During the same week, gasoline loadings into tankers at Gulf Coast ports were 20.8% less than average East Coast tanker supply requirements, as reported by the industry.

"Obviously, we cannot continue to consume what is not being supplied, and in recent weeks we have been narrowing our margin of safety.

Sales Figures Cited

"Sales by East Coast regions, in gallons, as reported by the industry, were:

	Week ending Aug. 1	Week ending Aug. 8	% Increase
New England	22,964,715	25,778,398	12.3
Middle Atlantic	61,237,091	66,570,457	8.7
South Atlantic	34,926,422	36,270,335	3.8

"Figures on the general gasoline supply situation furnished by the industry disclosed that Gulf Coast gasoline loadings (most of the East Coast's supply comes from the Gulf area) averaged, during the week, 340,200 barrels daily, as compared with the industry estimate of an August requirement of 429,500 barrels daily on such loadings. The 89,300 barrel deficit is equal to 22% of the sales reported by the 17 Atlantic Coast oil companies for a four-week period commencing July 11 and ending August 8. These sales average 410,000 barrels daily during the four weeks.

'More Drastic' Move Next

"There will be a constant shrinkage in stocks on the East Coast during the months immediately ahead of us. That shrinkage will continue until we can make up our deficiency in transportation facilities. This means that we must make a reasonable reduction upon our demands of oil and gasoline now if we are to escape a drastic involuntary rationing, because of the fact that there will be little oil and gasoline for anyone to buy after the needs of the defense program have been provided for. Strict, Governmental rationing, when imposed, is merely an effort to assure an equitable distribution when demand greatly exceeds supply."

Text of OPACS 'Gas' Allocation Order Curtailing Deliveries on East Coast

TITLE 32—NATIONAL DEFENSE
CHAPTER XI—OFFICE OF PRICE ADMINISTRATION AND CIVILIAN SUPPLY

Part 1340—Fuel
Civilian Allocation Program for Motor Fuel in the Atlantic Coast Area

Shortages in the availability of transportation facilities for the distribution of petroleum and petroleum products have caused shortages in the supply of motor fuel in the Atlantic Coast area. Further shortages of motor fuel and shortages of petroleum products for essential transportation, power and heating purposes are threatened unless immediate steps are taken to curtail consumption of motor fuel. The Petroleum Coordinator for National Defense, pursuant to the responsibility vested in him by the President in a letter dated May 28, 1941, has recommended to the Office of Price Administration and Civilian Supply in a letter dated August 14, 1941, that curtailment of the use of motor fuel be effected.

The following program is intended as an interim measure pending the development of a further plan for allocating the distribution and consumption of motor fuel.

Accordingly, pursuant to the powers vested in me by Executive Order No. 8734, particularly Section 2 (a) thereof, the following program is announced:

1340.1 Allocation of Motor Fuel. No supplier of motor fuel shall, directly or indirectly, deliver or cause to be delivered in any month to resellers and consumers of such motor fuel more than 90% of the amount delivered by him to resellers and consumers during the month of July 1941; provided that during the remainder of the month of August 1941 subsequent to the effective date of this program no such supplier shall so deliver or cause to be so delivered more than 45% of the amount of motor fuel delivered by him during the month of July 1941.*

*1340.1 to 1340.8, inclusive, issued pursuant to the authority contained in Executive Order No. 8734.

1340.2 Methods of Distribution. Subject to the provisions of 1340.3, no supplier in making deliveries of motor fuel shall discriminate between resellers (including service stations owned or controlled, directly or indirectly, by him) or consumers supplied by him, and every supplier shall curtail deliveries to all resellers and consumers supplied by him on a proportionate basis. Subject to the provisions of 1340.3, no person maintaining or operating any service station shall, in making deliveries of motor fuel, discriminate or permit others to discriminate between different consumers of motor fuel or different classes of trade and every such person shall so make deliveries as to spread necessary curtailment of motor fuel propor-

tionately among different consumers and different classes of trade. All suppliers shall make deliveries in such manner as to distribute such deliveries proportionately throughout each month; and all persons maintaining or operating service stations shall make deliveries in such manner as to distribute such deliveries proportionately throughout each day.*

1340.3 Preferences for Certain Uses. In making deliveries of motor fuel all suppliers and persons maintaining or operating service stations shall give preference to deliveries of motor fuel to be used, not in excess of the minimum necessary requirements, for the following purposes:

1. The operation of commercial vehicles so classified by law.
2. The operation of vehicles necessary for the public health or safety, including ambulances and vehicles operated by physicians.
3. The operation of farm machinery and motor trucks used for farm purposes.
4. The operation of vehicles owned or operated by Federal, State, or local governments.

In making deliveries of motor fuel, all suppliers and persons maintaining or operating service stations shall give preference to all other uses of such fuel over deliveries to be used in the operation of pleasure boats.*

1340.4 Reports. Each supplier of motor fuel shall keep for inspection for a period of not less than one year complete and accurate records of all deliveries of motor fuel, showing the date thereof, the name and address of the consignee, the price received, the use for which such motor fuel was delivered, and the quantity of each type of motor fuel delivered.*

1340.5 Application to Atlantic Coast Area. This program shall be applicable to deliveries of motor fuel in Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, Pennsylvania, New Jersey, Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida east of the Apalachicola River, and in the District of Columbia.*

1340.6 Definitions. The term "person," as used in this program, includes any individual, partnership, association, corporation, or other form of enterprise.

The term "supplier," as used in this program, means any person, including a reseller, selling or delivering motor fuel to any reseller or consumer of such motor fuel; but the term shall not include any person all of whose deliveries are made at service stations and shall not include that part, if any, of a supplier's business included in the definition of a "service station."

The term "reseller," as used in this program, means any person who receives motor fuel for resale.

The term "service station," as used in this program, means any place of business where motor fuel is sold and delivered into the fuel tanks of motor vehicles or motor boats.

The term "motor fuel," as used in this program, means liquid fuel used for the propulsion of motor vehicles or motor boats, and shall include any liquid fuel as to which Federal gasoline taxes apply except liquid fuel used for the propulsion of aircraft.

The terms "deliver" and "deliveries," as used in this program, except as used in 1340.4, shall not include deliveries of motor fuel loaned, exchanged, purchased, or sold between suppliers or persons maintaining or operating service stations made for the purpose and with the effect of enabling such suppliers or persons maintaining or operating service stations to equalize as between themselves the percentage of curtailment required of different classes of trade.*

1340.7 Enforcement. This program shall be administered and enforced by the Office of Production Management.*

1340.8 Effective Date. This program shall become effective August 15, 1941.*

Issued this 15th day of August, 1941.

(Sgd) Leon Henderson
Administrator

P.N. 155202

Ickes Should Give Public the Facts On Need for 'Gas' Saving, Times Says

CLEVELAND, Aug. 18. — "What is needed is a far more effective campaign than has yet been provided to explain to the public the reasons for and inevitability of gasoline curtailment and an equitable system of restrictions that will treat all alike," *The New York Times* said editorially today. Text of the editorial follows:

SHARING THE SHORTAGE

As the defense program enters the period when shortages begin to pinch, the Government faces the difficult problem of seeing to it that the burden of sacrifice is fairly shared. The present effort to curtail gasoline consumption in the seventeen Eastern States is a case in point.

Federal Petroleum Coordinator Ickes began by tackling the job in happy-thought fashion. He sought by slogans, stickers and a curfew on gasoline sales to persuade the motoring public to use less fuel. The result was just the opposite. In the first week of the campaign actual consumption rose 8 per cent. Now a form of mandatory curtailment is to be tried. Deliveries to filling stations and garages are to be reduced by 10 per cent. Suppliers and filling station proprietors are saddled with the task of spreading their deliveries proportionately so as to pass the 10 per cent reduction along to the consumer. This is clearly an unfair responsibility to place upon small business men. It confronts them with the alternative of alienating regular customers or evading the spirit of the regulation by favoring one motorist at the expense of another.

Obviously such a system cannot be satisfactory. It is already indicated that the plan is to be merely an "interim measure" pending the development of some better arrangement for allocating distribution and consumption. The danger is that having made such a haphazard start, it will be necessary in the end to adopt far more drastic measures than might otherwise have been needed. The weakness of the Government's efforts to curtail gasoline consumption seems to have arisen from the casual optimism with which the problem was approached. The experience shows that it is not possible to get very far on the basis of well-meant appeals for voluntary self-restraint or by shifting responsibility to individual retailers.

What is needed is a far more effective campaign than has yet been provided to explain to the public the reasons for and inevitability of gasoline curtailment and an equitable system of restrictions that will treat all alike. In all probability this will mean some form of compulsory rationing. But that is to be preferred over a haphazard "voluntary" program that invites abuses and will lead to discontent. It must be remembered that the methods adopted now will establish precedents for future restrictions that may become necessary. If the first experiments invite evasion, the later methods will be correspondingly more drastic. It would be better to be realistic at the start.

—*New York Times, Aug. 18.*

It's 'All Out' for Bassi, Whether in China or U. S.

A bombing on China's Burma Road and in Japan's "full-moon" aerial attack on Chungking a year ago—when 15,000 tons of high explosives rained down during a steady, 13-day "all out"—are two experiences Andrew B. Bassi, oil man and road builder, carries with him on his new job as head of the motor transport branch of Office of Production Management's purchases division.

But Oil Man Bassi has others. For instance, a siege of "black-water fever" and a Chinese diet of shark fins and untrimmed black bear paws—which he mentions with a grin.

Born in Chicago and educated at the Lewis Institute of Technology, Andrew Bassi started crowding colorful experiences into a short space of time when, at 23, he became First Lieutenant, Aviation Corps, assigned to flight instruction at Rich Field, Waco, Texas, during the first World War. Young Lieutenant Bassi served at Waco from 1917 to 1919, and his experience as an Army pilot came in handy several years later on China's strategic motor artery.

In 1925, Mr. Bassi joined the Vacuum Oil Co. as a commercial car sales engineer and 4 years later was transferred to Vacuum's New York office where he was attached to the aviation department. Completing his work there, he returned to Chicago and to his former position.

Andrew B. Bassi, recently appointed head of OPM's motor transport branch, purchases division

In August, 1939, however, Mr. Bassi boarded the China Clipper with 2 colleagues of a commission sent to the East by Uncle Sam to build a transportation system for the sprawling empire of the Mings. Purpose of the trip? Oil Man Bassi explains, "I was undertaking this task for the exportation of natural resources for repayment of the export-import bank loans."

After chopping his way through the bush, Mr. Bassi later winged his way over the Burma Road snapping aerial photographs. The task was similar to his job of surveying the Mississippi Valley for the government after the first war.

When the survey was finished, Mr. Bassi moved back to bomb-belted Chungking where the commission had established a combination headquarters and lodgings. This was smashed to scrap 3 times and when the Socony-Vacuum engineer beat a retreat to air-raid shelters, the bombs followed, lambasting his steel and concrete hide-out and sending him limping with hemorrhages for a week.

It was eighteen holes of golf in Hong-Kong, eighteen more in Manila and a 5-day rest on the Lurline skirting the Pacific for the returning oil man. And that's easy to explain, for about him, his company says: "He has no particular hobbies. As a matter of fact, his life has been so crowded with work in the last few years that he hasn't had much chance to develop hobbies—although he does enjoy golf."

Now, at 47, Mr. Bassi is busy untangling the purchase problems for OPM at $1 a year, leaving his wife, his 2 sons and his spare time on the south side of Chicago.

'Barrels for Britain' Plan Fails in Texas; Some Donate

Special to NPN

AUSTIN, Aug. 18. — Texas produced only 11,332 bbls. of crude for Britain last Sunday, the Railroad commission announced at brief state-wide proration hearing today in which no requests were received from 10 of the state's 12 districts.

North Texas and Panhandle districts requested more production. Nominations were 1,817,790 bbls., a decrease of 22,041 bbls. daily from August nominations. Federal estimate for September yet unreceived here.

Approved Idea

While Texas producers generally were 100% behind the plan to aid England, legal and other difficulties encountered made "Barrels for Britain" a virtual washout.

Blow that finally stopped the plan came when Oil Co-ordinator Ickes revealed to Texas newspapermen in Washington that he had not approved the proposal. Railroad Commission first approved the plan after they were informed Mr. Ickes had likewise approved.

Among difficulties encountered:

1. Corporations could not donate oil without polling their stockholders;

2. Many small operators have production assigned to banks, and could not legally give oil away;

3. State law requires pipelines to have tenders, giving name of person to receive oil and the destination, before accepting it for piping;

4. Royalty owners would have to give approval. In the case of University of Texas lands, not even Texas legislature has power to give away the University's share.

Had Asked for Hearing

In addition, it was pointed out that Britain is already getting all the oil that can be transported.

Thirty Houston companies signed a telegram to the Railroad Commission, asking for a hearing to iron out difficulties. Chairman E. O. Thompson agreed a hearing should be held, but Commissioners Sadler and Culberson overruled him and said the donation day would go ahead as planned.

The *Houston Post* wrote Friday that "a majority of the Houston oil operators consider the oil-for-Britain day a closed affair following Ickes' statement that he had nothing to do with the affair."

Calls Off Ceremony

Later Friday, Commissioner Sadler who had been pushing the plan, issued a scathing statement calling off the ceremony on Monday to which President Roosevelt, Lord Halifax, the British ambassador, and other dignitaries, including Mr. Ickes had been invited. Mr. Sadler wired the President rescinding the invitation, then made public his statement criticizing unnamed oil companies which he termed "steeped in selfishness" and "greedy for gain".

Mr. Sadler declared 9 east Texas operators who had tenders for oil they planned to donate had been refused transportation by common carrier pipelines, and hinted that action might be taken against these companies. In part, his statement said:

Hits Unnamed Firms

"Efforts have been made by various companies to stifle this program. It is their desire to fatten their coffers with the taxpayers' money that pays handsomely for national defense contracts. Texas has a vast supply of oil. An extra day's production (Sunday is shutdown day in Texas) would hardly be missed."

Operators who came to Austin Monday for the state-wide proration hearing at which the presentation was to have been made, expected trouble, or at least harsh words from Commissioner Sadler because of a paragraph in his statement noting that those same unnamed firms would be here Monday asking for increased allowables, "claiming they need it to fill their contracts under the lease-lend law."

Voluntary Allowable Set By Mississippi Producers

TULSA, Aug. 18. — Mississippi's producers have voluntarily agreed to a 600-bbl. per well maximum allowable for their wells, according to reports here.

First reports had indicated the move was outgrowth of a fear that federal jurisdiction might be extended to the Mississippi producing areas. But check of situation reveals supply and demand for Mississippi crude has been disturbed slightly by excessive production from a few isolated wells. Some wells have produced at rate of 1200 bbls. daily, it was said, and efforts were made to discourage this practice by voluntary curtailment. While isolated wells have been "producing their heads off", official reports indicate daily average production from Mississippi's 225 wells is only 127 bbls. per well.

While producers were adjusting output with demand, evidence of a new Mississippi oil field were indicated by show of oil in a Sharkey County test. Well swabbed 400 bbls. of fluid, of which 150 bbls. was oil. It tested 24 gravity and was described as "paraffin test."

Transportation Management Studied at University

LOS ANGELES, Aug. 16.—"Automotive transportation management" is the title of a special course that the University of California Extension Division will open Sept. 16. Dr. Vernon D. Keeler, assistant professor of management and industry at the University, will be instructor in the course, which has won national attention because of its relation to the practical problems involved in effective organization of a vital industry.

Texas Studies Bonus Plan For Salt Water Injection

AUSTIN, Aug. 15—Texas Railroad Commission is considering a plan to allow an extra barrel of crude production each day to operators who reinject salt water. In two and one-half years, according to Engineer Frank Spiller, operators would about break even.

The 'Anker L. Christy'—Completes Maiden Voyage

The "Anker L. Christy", flagship towboat of Pure Oil Steamship Co.'s. river fleet, is one of the largest screw towboats ever built for service on inland waterways

NPN News Bureau

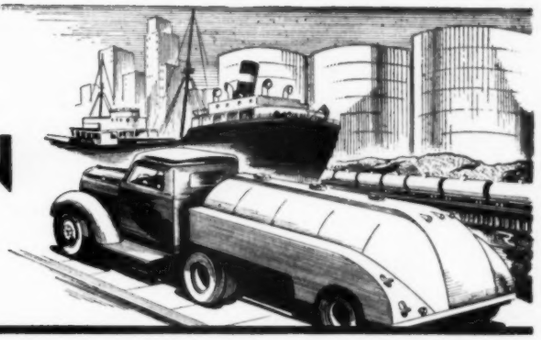
CHICAGO, Aug. 18 — The "Anker L. Christy", newest river towboat of the Pure Oil Steamship Co., Chicago, completed its maiden voyage yesterday from Port Neches, Tex., to Minneapolis, Minn. City and company officials inspected the vessel before it left on the return trip down the Mississippi. First delivery was a load of gasoline.

One of the unique features in the construction of the Christy is a retractable pilot house which can be lowered in less than one minute to allow clearance under most bridges.

The Christy is 108 ft. in length; 30 ft. in beam; tows 2 barges with a total capacity of 1,344,000 gals.; carries enough fuel oil in 6 compartments to operate its 3-400 h.p. diesel motors for 30 days, and has a speed of 6 knots. Vessel is equipped with radio telephone, ship-to-shore phones and "black light" illumination on the pilot house control panel — which lights indicators without outside reflection.

The towboat was named for Anker L. Christy, vice-president of Pure Oil Steamship Co. and was built by Sturgeon Bay Shipbuilding and Dry Docks Co., Sturgeon Bay, Wis.

OIL TRANSPORTATION



ICC Asks Regulatory Power Over Truck Size and Weight

NPN News Bureau

WASHINGTON, Aug. 18.—Authority to prescribe sizes and weights of interstate trucks was asked of Congress by the Interstate Commerce Commission, in a report made by the ICC this past week.

Outlining legislation it regards as necessary, Commission told Congress that the need for securing as economical and efficient motor transport service as possible, together with national defense requirements, justifies federal government in entering the field of regulation of sizes and weights of interstate trucks. Safety and convenience, by themselves, do not justify such a move, but should be considered in any federal regulation of sizes and weights, report said.

Sees Legislative Need

Federal size-weight legislation should be administered in light of the policy set forth in transportation act of 1940 which declares the inherent advantages of each form of transportation should be preserved, Commission said. ICC size-weight report was filed in response to a request made by Congress in the 1940 transportation act.

National standard of weights and sizes is impractical, ICC declared in report. Congress, therefore, should enter this field "only to the extent that proves necessary under the circumstances of particular situations."

To carry out this policy, ICC should be granted power to set aside state and local limitations on truck sizes and weights found to be a burden on interstate commerce. Complaints considered by ICC would be limited for the most part to main highways, although Commission should not be foreclosed from removing restrictions on truck use of secondary roads.

Truckers Want Modification

Provision also should be made for ICC to obtain technical highway reports from the Federal Public Roads Administration and State highway departments in proceedings involving state or local limitations on trucks, ICC report said. PRA and states should have authority to modify temporarily ICC size and weight orders to meet emergency situations. Enforcement of ICC orders would be handled concurrently by federal and state authorities, insofar as possible.

Federal intervention to fix interstate truck sizes and weights is desired, in general, by for-hire motor carriers, War Department, Agriculture Department, and Federal Public Roads Administration, ICC told Congress in report. Public opinion tends to be either favorable or neutral, while the opposition comes, first and foremost, from the railroads and, secondly, from the states.

Long Truck Haul May Be Answer To Oil Shortage

NPN News Bureau

WASHINGTON, Aug. 18. — Several large-scale projects for using transport trucks on long hauls to break the oil shortage on Atlantic Seaboard have been discussed with the Petroleum Co-ordinator's Office.

Thousands of transport trucks, hauling as much as 4000 gals. and more, are now engaged in moving gasoline and other products from Atlantic and Gulf seaport terminals inland to points 300 and 400 miles distant.

Principal obstacle to an *eastward* movement by truck from Mississippi and Ohio river crossings and marine terminals has been the low limits on truck sizes and weights imposed by Kentucky, Tennessee, Alabama and other "trade barrier" states.

Now, with the Interstate Commerce Commission recommending a federal size and weight law, all these barriers might be leveled at one stroke. Should railroad opposition in Congress prove too formidable for a general law, special legislation might be rushed through to give the President authority to suspend these "too low" load limits of the barrier states for trucks hauling war materials or urgently-needed defense supplies—like petroleum products.

In some quarters, however, it has been suggested that President Roosevelt already has this power—that is, to suspend state size-and-weight restrictions in the interest of defense — from his declaration of an unlimited national emergency. If so, then the President could probably delegate such powers to the ICC generally, or split it up among interested agencies with the Petroleum Co-ordinator's Office named to handle applications from petroleum transporters for exemption from state load limits.

If such a plan goes through, then the PCO would probably go to bat for priorities on trucks, tanks and other equipment needed by such transporters.

Rail Conference Develops Proposals To Meet Truck Inroads in Mid-West

NPN News Bureau

CHICAGO, Aug. 18.—At least two methods of meeting truck competition on petroleum shipments from mid-western pipeline and marine terminals to destinations beyond 250 miles are under consideration by rails. With two attacks on the problem developing, the original proposal (W. T. L. D-37-492) calling for reductions of as much as 0.56c per gal. may be shelved.

Preliminary discussions last week between members of Western Trunk Line Committee and 2 northern railroads brought out the 2 schools of thought.

Western Trunk Lines don't relish the idea of drastic reductions in rail rates beyond a 250-mile radius of mid-western terminals. Conditions are too uncertain they say, giving favor to retention of present "truck-competitive" rates up to 250 miles and a more gradual upward gradation of those rates beyond 250 miles. This would meet truck competition on the longer hauls, they believe.

Propose Deeper Cuts

Northern rails went back to their home offices after the conferences to frame a proposal more drastic than that discussed by Western Trunk Lines and based on the "truck-competitive" scale now used in Kansas. It was felt the Kansas scale was more nearly "truck-competitive" than rates outlined in the original proposal and those suggested by mid-western roads.

Proposal to be filed by northern lines in about a week calls for reductions of from almost 0.6c to almost 1.5c per gal. on gasoline shipped beyond the 250-mile radius.

Efforts at reducing rail rates out of mid-western and northern terminals have southwestern rail-shipping refiners nervously scanning through-rates from their plants to destination territory in the Mid-West. They have just received some relief from pipeline "competition", they say, but reductions from terminal points will counteract these benefits considerably.

See Benefits Nullified

Their benefits from the June 11 rate reductions will be nullified almost the extent of any reductions from marine and pipeline terminals. To fight the reduced terminal rates would make it necessary for them to defend "truck-competitive" rail rates in several southwestern states, which are now much below those from mid-western terminals.

So with prospects of finding themselves in about the same position they were prior to the June 11 reduction, some rail-shipping refiners are studying with greater interest the possibility of utilizing pipeline transportation to the Mid-West at rates considerably below those charged by rails. With several refiners banding together to make up the 25,000-bbl. minimum tender necessary for pipeline deliveries through existing lines, the possibility of pipeline transportation by independent rail shippers takes on added significance.

Will Push for Cut In Heavy Oil Rate

NPN News Bureau

CHICAGO, Aug. 18.—Independent action by consumer and jobber groups in the Mid-West and North seeking reductions in heavy oil rail rates from southwestern refineries is expected now as result of Interstate Commerce Commission denial of petition for heavy oil rates based on 80% of light oil rates.

First blast against the "precedent-shattering practice" that has resulted in some heavy oil rates above those for light oils is expected from oil jobber associations in the Mid-West and North. Later, state road commissions are expected to take part in a move to have heavy oil rates reduced approximately 18 or 20%, to a level 80% of the light oil rates.

Much interest has been indicated in the Aug. 19 meeting of southwestern and mid-western rails in Chicago to consider proposals affecting heavy oil rates. Should rails hold gasoline rates as maximum for heating oils and apply gasoline weight of 6.6 lbs. per gal. to the heavy oil rates (now based on 7.6 lbs. per gal.), southwestern refiners and jobbers are expected to benefit materially.

ICC Calendar On Oil Trucking

DECISIONS

Petroleum Carrier Corp., Jacksonville, Fla. (I&S Docket No. M-1361.) Proposed any-quantity minimum rates on petroleum products, in packages, from Port St. Joe, Fla., to points in Alabama and Georgia, ranging from 18.9c per 100 lbs. to Enterprise, Ala. to 52c to Scottsboro, Ala., found not justified without prejudice to the filing of a new schedule making such rates applicable to a minimum weight of 16,000 lbs. Suspended schedule ordered canceled and proceeding discontinued.

Seek Crude Rate Cut From Kentucky Area

NPN News Bureau

CLEVELAND, Aug. 18.—Proposal for 45c per hundredweight cut to 23c in crude rail rates from Stanley, Utica and Spottsville, Ky., to Bayway, N. J., is under consideration by Trunk Line Committee executives. Proposal, already approved by Southern Freight Bureau, also includes 24c per cwt rate on crude from Belton and Browder, Ky., to same destination.

About 25 cars of crude daily are being shipped from Owensboro, Ky., to East Coast on a 23c rate and if lower rates from surrounding points are approved, movement is expected to increase. Aproximately 700 cars of crude are moving each month to East Coast from Martinsville, Ill.

Louisiana Refinery Sold To Kansas Corporation

NPN News Bureau

TULSA, Aug. 18.—The 12,000-bbl. refinery of Rodessa Oil & Refining Co. at Cedar Grove, La., has been purchased by Brown-Strauss Corp. of Kansas City.

While the plant has not been in operation for some time, new owners have indicated they may re-open it if crude can be obtained.

"With so much emphasis on refining capacity during the present emergency, it would be a crime to junk such a plant as this," one of the new owners said.

The refinery was rehabilitated in 1937 and new cracking and topping units installed. At that time the plant had a rated capacity of 12,000 bbls. of crude daily and cracking capacity of 6500 bbls. A gas polymerization unit with output of 25,000 gals. daily is also listed among the properties.

New Indianapolis Refinery To Run Oklahoma Crude

TULSA, Aug. 18.—Crude for Rock Island Refining Co.'s new Indianapolis refinery will be obtained from Oklahoma's Cement pool in Caddo County. Construction of 30 miles of 6-inch line from the field to Oklahoma Pipe Line Co.'s pump station near Marlow, Okla., will be completed by Sept. 15. Runs will begin immediately through the new line and facilities of O.P.L., Ajax, Wood River and Illinois lines.

Approximately 6000 bbls. of Cement crude will be delivered daily to the Indianapolis plant, with operation of the new refinery scheduled as soon as the oil arrives. Output of the Indianapolis refinery will be marketed locally by truck, company officials said.

Docket Rate Cut Proposal

TULSA, Aug. 18.—Another "coals to Newcastle" proposal was revealed last week when Western Trunk Line Committee docketed proposal for 9.32c per bbl. reduction in rail rates on crude oil shipped from Lenora and Stockton, Kans., to Falls City, Neb. Falls City is Nebraska's No. 1 producing area, with production averaging about 6000 bbls. daily. Falls City has one 2500-bbl. refinery near the field and has been supply depot for several nearby plants.

Canada May Follow U. S. Restrictions On 'Gas' Deliveries

Special to NPN

TORONTO, Aug. 16—Interviewed in regard to Canada following in the steps of Petroleum Co-ordinator Ickes in rationing deliveries of gasoline to service stations, Oil Controller George R. Cottrelle said: "We will likely do the same thing, but to what extent as yet, we do not know. In any event, it will be as much or more. As a matter of fact, because of reduction in retail sales, deliveries to service stations have already been reduced."

* * *

Sales Drop 10-15%

Special to NPN

OTTAWA, Aug. 16.—"Reasonably satisfactory," is description C. D. Howe, Canadian minister of munitions and supply, gives to the response of Canadian motorists to the gasoline conservation appeal.

Reports indicate retail gasoline sales were down from 10 to 15% Mr. Howe said, and this represented a larger curtailment for pleasure driving since many commercial vehicles purchase from the same stations as motorists.

Mr. Howe said neither he nor Oil Controller Cottrelle found any indication of immediate need for rationing. In reply to rumors that rationing cards had been printed, Mr. Howe said it was "possible."

"We might print the cards, and hope we would not have to use them," he added.

* * *

Would Exempt Tourists

OTTAWA, Aug. 16.—Lifting of the gasoline ban during restricted hours to U. S. tourists is requested in a petition of the Ottawa Tourist and Industrial Committee to Prime Minister MacKenzie King. Committee states goodwill and U. S. dollars are more important to further the war effort than the saving of this gasoline.

* * *

Asks Delivery Service Cut

TORONTO, Aug. 16.—Oil Controller George R. Cottrelle has asked merchants to cut deliveries and is appealing to Canadian citizens to carry packages when possible. Neighborhood merchants are asked to pool delivery service; newspapers and others with light deliveries to cut service by at least 50%.

Two large department stores here are conducting advertising campaigns which urge customers to forego delivery service when possible. One of these stores this week removed 30 trucks from its delivery service and placed the remainder on a 2-route basis.

Another Canadian department store is pasting stickers on packages customers decide to carry. Stickers read, "Carried To Save Gasoline."

* * *

Crude Production Up

OTTAWA, Aug. 13.—Crude oil production in Alberta for June was 783,141 bbls., an increase of 5,463 over June a year ago. Revenue to producers from sales of crude and natural gasoline was $995,923, up $33,198 from June, 1940.

California Output May be Curtailed

LOS ANGELES, Aug. 18. Drastic curtailment of oil production, to the possible extent of 70,000 bbls. daily, appears to be in store for the California oil industry as a result of recent political developments in the Pacific area. Oil men here see a loss of approximately 52,000 bbls. daily in shipments to Japan, a decline of more than 10,000 bbls. daily in demand for bunker oils for Japanese tankers and a serious decline in coastal and intercoastal oil movements.

While no action has yet been taken by the Conservation Committee of California Oil Producers, some observers eye with apprehension the rapidly increasing quantity of oil being produced in excess of the state quota. In 10 important fields of Kettleman Hills, Ventura Avenue, Dominguez, Huntington Beach, Inglewood, Long Beach, Santa Fe Springs, Wilmington, Gato Ridge and Del Valle, the combined excess production in first 10 days of August amounted to 41,600 bbls. daily over July production.

Attempts by operators in certain fields, including Long Beach, Huntington Beach and Inglewood, to inaugurate a state-wide reduction of output was made last month but failed to receive wide support. Operators who are producing in excess of their quota appear to be influenced by the desire to obtain maximum output before the threatened federal action is taken to limit production.

Black Gold Refinery Bought by Naph-Sol

OKLAHOMA CITY, Aug. 18. The 2200-bbl. refinery of Black Gold Refining Co. here has been purchased by W. E. Anderson, president of Naph-Sol Refining Co., Muskegon, Mich.

The plant will be operated as Mercury Oil Refining Co. and output will be marketed locally. Extensive improvements will be made in the refinery, according to Mr. Anderson.

Oil Men, Educators Join in Training Of Indiana Station Operators

Oil marketing executives today consider educational training programs more important than ever. The appeal of national defense jobs and the inroads made by the draft on their employes are making the training of the new employes a major activity now, and perhaps for years to come.

This article tells how the Indiana Independent Petroleum Assn. developed a training program to meet its members' particular needs. The plan is not a "wishful thinking" proposition, but represents the combined experience of Indiana's leading oil jobbers as to what the course should include. But it goes even further than that. Through the co-operation of Indiana University, a special research worker in distributive education conducted field surveys among service stations that resulted in a program for use of management in self-training and in handling men.

The "Indiana plan," which has been in the course of preparation for nearly a year, contains many ideas that will be helpful to marketing executives, particularly those handling their company's sales training program.

SOMETIME in September—exact date to be announced later—the Indiana Independent Petroleum Assn. will start its training program in merchandising, marketing and salesmanship.

This program is designed to help service station attendants of its members serve the public better.

To oil marketing executives, that part of the plan which calls for training oil men to conduct the teaching program, instead of employing outside professors from schools, is perhaps of more interest than the actual training program itself.

The development of this training program started in October, 1940, shortly after Phil T. Williams, Indianapolis, Caseteria, Inc., was elected president of Indiana Independent Petroleum Assn. Mr. Williams has long been a practicing advocate of sound service station training as head of his own marketing organization.

George W. Hofmayer, secretary of the association, heard something about a "federal state aided distributive program". So he and George H. Lilly, the association's educational advisory chairman, went to Professor John H. Dillon, teacher-trainer of Indiana University, to find out what this "distributive program" was all about.

They found that the program, organized under the federal George-Deen act, which became effective July 1, 1937, provides for the initiation and promotion of training employes in the field of distribution, retail, wholesale and service, through the use of federal moneys allocated to the states on a population basis.

For many years various economists, professors and government officials as well as representatives of farmers and labor unions, have been decrying the alleged "high cost" of distribution. So among the various efforts the government at Washington has made at this problem is this one discovered by these Indiana oil jobbers to set up a method of teaching employes who distribute—that is who sell, wait on the counter, pack merchandise and even drive trucks—better and more economical ways of doing their respective tasks. From this teaching, government hopes that the "high cost" of distribution will eventually be reduced.

Messrs. Hofmayer and Lilly found that the federal act authorizes a total annual appropriation of $1,200,000, a part of which—50% until 1942—shall be matched by state or local money. Thereafter, the amount to be matched by the state increases 10% each year. Thus in 1947, it will require 100% matching. Forty-seven states now have the machinery set up for the administration of this program.

They found further that this same educational service is available to all trade groups in the state, the amount of service being determined by the interest shown by each trade group. They were surprised to learn that over 10,000 salespeople, junior executives and store operators had attended classes and conferences organized in communities over Indiana as part of this state-wide distributive education service to business.

This program under the George-Deen act is distinctly one pertaining to distributive education. It is entirely different from the huge government vocational training program, which trains farmers, maids, stenographers and industrial workers under certain conditions. The training is offered only upon request of business men, who must ask for specific classes. When that is done, machinery is put into operation for organization of such classes.

It so happened that the Indiana jobbers association contacted Professor Dillon, teacher-trainer. In other states, the procedure to get started on a program of this kind would be to contact the state supervisor of education at the state capital. This official will in turn inform the interested party as to who to contact in order to get started on the program. In most states there are state boards of vocational education, under whose direction there is a state superindendent for distributive education.

The procedure in other states would

Phil T. Williams, president of I. I. P. A., who was a force behind the association's service station training program

be along that used in Indiana, although the arrangement will vary. There the oil men found that Professor Dillon of Indiana University was not only in position to co-operate personally, but also that under the state set-up for operation of the distributive educational program the help of technical consultants was available. A number of meetings of the association board of directors and these technical consultants resulted in an analysis being made of the best practices in service station operation. This analysis was to attack the problem of instruction from the new educational approach of modern vocational training—to teach men who run stations what they must know and what they must be able to do in order to be successful.

In developing the service station training program for Indiana, Leonard S. Ralph, state co-ordinator of distributive education, University of Utah, was brought to Indiana. For 6 weeks he analyzed the work of successful service station operators, and his analysis was used as a basis for the training course. A similar course is being planned for the benefit of Utah oil marketers, and the information developed by Professor Ralph will be used for a training program for that state.

Professor Ralph found out just what subjects to teach the station attendants. These were submitted to the association advisory education committee and board of directors. The net result was a listing of 240 things that an attendant has to do. Before being made a part of the course, each one of these job responsibilities had been checked by the 12 members of the educational advisory committee, leaders in the petroleum industry from all sections of Indiana.

The training course as finally outlined consisted of 12 units covering the entire service station field. This included the following subjects:

1—"Introduction to More Profitable Service Station Selling".

2—"Selling the Petroleum Industry to the Public".

3—"Selling Merchandise".

4—"Keeping Yourself Effective".

5—"Servicing the Customer".

6—"Keeping the Station Clean".

7—"Care and Maintaining Merchandise".

8—"Keeping Records".

9—"Granting Credit".

10—"Making Collections".

11—"Getting New Business".

12—"Cashing in on the Lubrication Department".

These 12 subjects were in turn developed in the form of instructors' or discussion leaders' outlines. These outlines, in the form of a manual, consist of 135 pages of typewritten, single-spaced material. A copy of one of these sheets accompanies this article. At the end of each section of the course, short "true or false" test questions are given the members to check up on their own understanding of the points that have been covered in the discussion.

With the completion of the material for the course itself, the association announced to its members that an intensive leader training course would be available for 30 oil marketing executives. It was specified that, to qualify, these men were to be those charged with the responsibility of training and supervising service station attendants. It was felt that 30 was the number that could be most successfully handled. More than 40 applicants were received.

The 30 men finally selected will be put through an intensive 3-day course of instruction this fall under the direction of Mr. Ralph, of the University of Utah.

They in turn will return to their homes to act as instructors. Courses will be organized in the public schools in various sections of the state. According to the I.I.P.A., the schools pay up to 2/3 of the cost of instruction and travel of the instructors; other expenses are to be met by the enrollees by a nominal tuition fee. It is planned to conduct the courses at night.

According to Mr. Dillon of the University of Indiana, who is to conduct the instructors' or discussion leaders' training, the modern trend in personnel training is along the lines to be followed in this course. Mr. Dillon has conducted many of these short courses for sales managers, route supervisors and foremen. The manner in which those attending the conferences are taught leadership technique will be of interest to any marketer, whether he conducts his own training program or delegates the work to one of his assistants. Much of the value of this type of meeting will come from the direct exchange of experiences and the stimulation to the attendant to think through the problems confronting him.

Here are a few of the more important leadership problems to be discussed with suggestions on how to handle in the leaders' training:

Developing Discussions

It is pointed out that one of the best ways to develop discussion is to ask questions that cannot be answered yes or no. Leaders are told to refrain from answering questions themselves.

Highlights of Suggestions Offered Leaders in I.I.P.A.'s Leader Training Conferences

1. Enthusiasm is contagious . . . your enthusiasm will be reflected by the group.

2. Don't get nervous. Work quietly. Let the group set the pace. If you find that time is getting short, explain to the group in an undisturbed manner that it will be necessary to move along more rapidly. Whatever you do, don't become confused or excited.

3. Keep before the group the thought that this is their meeting. Its success will depend upon what they put into it. Your job is to collect, sort and summarize their thoughts.

4. You will find that a humorous story told to illustrate a point will sometimes break up a bad situation.

5. You can often break up annoying whispered conversation by tactfully stationing yourself in close proximity to those who are whispering, or by addressing a question to one of the persons involved.

6. When you get a good discussion started, try sitting down. This makes the meeting more informal and usually will improve a discussion.

7. If you are sitting down and the discussion is headed for a sidetrack, try standing up—suddenly. The pause in the conversation that will follow will give you the opportunity to get the group back on the track.

8. A poker face in natural situations, an encouraging smile or nod in others will tend to stimulate and bring out discussions.

9. The listings on the chart or blackboard are the backbone of the conference. They are placed there in order that the group may keep them in mind. The group wants to see them. Do not block their vision by standing in front of the board.

10. Before erasing a member's opinion which has been placed tentatively on the board, get his permission. The question for his permission serves to focus attention on the point and clarify its disposal in the minds of the individual members of the group.

11. When you find yourself in a tight spot and do not know exactly what course to follow, call for a recess. Plan your procedure unhurriedly and reconvene.

Motor fuel from refinery gas

Cracked gas that used to be burned under boilers and stills produced hundreds of millions of gallons of 81-83 octane gasoline by the U. O. P. catalytic polymerization process in 1940 in the plants of 50-odd United States and Canadian refiners

The polymer gasoline was made from the olefins in the gas produced in cracking operations, leaving the stripped gas for use as fuel

Here are the refiners in United States and Canada who are operating catalytic poly units or installing them:

Ashland Oil & Refining Co	*Catlettsburg, Ky*
Atlantic Refining Co	*Point Breeze, Pa*
Bareco Oil Co	*Wichita, Kansas*
James B Berry Sons Company	*Oil City, Pa*
Big West Oil Co of Montana	*Kevin, Montana*
Canadian Oil Companies Ltd	*Petrolia, Canada*
Canton Refining Company	*Canton, Ohio*
Continental Refining Co	*Oil City, Pa*
Cooperative Refinery Ass'n	*Phillipsburg, Kans*
Cosden Petroleum Corp	*Big Spring, Texas*
Cushing Refining & Gasoline Co	*Cushing, Okla*
Danciger Oil & Refineries Inc	*Pampa, Texas*
Deep Rock Oil Corp	*Cushing, Okla*
Derby Oil Company	*Wichita, Kansas*
Fletcher Oil Co Inc	*Los Angeles, Calif*
Freedom Oil Company	*Freedom, Pa*
Gas & Oil Products, Ltd	*Hartell, Canada*
Glacier Production Co	*Cut Bank, Mont*
Goodrich Refining Co Ltd	*Port Credit, Canada*
Home Oil & Refining Co	*Great Falls, Montana*
Independent Refining Co	*Arp, Texas*
Independent Refining Co	*Laurel, Montana*
Inland Empire Refineries Inc	*Spokane, Wash*
Johnson Oil Refining Co	*Cleveland, Okla*
Kendall Refining Co	*Bradford, Pa*
Leonard Refineries, Inc	*Alma, Mich* *St Louis, Mich*
Louisville Refining Co	*Louisville, Kentucky*
Mid-West Refineries Inc	*Alma, Michigan* *Grandville, Mich*
Mohawk Petroleum Corp	*Bakersfield, Calif*
Naph-Sol Refining Co	*Muskegon, Mich*
Northwest Refining Co	*Cut Bank, Mont*
Ohio Oil Co	*Robinson, Ill*
Old Dutch Refining Co	*Muskegon, Michigan*
Pan American Refining Corp	*Texas City, Texas*
Panhandle Refining Co	*Wichita Falls, Texas*
Pathfinder Petroleum Co	*Los Angeles, Calif*
Pennzoil Company	*Oil City, Pa*
Pure Oil Company	*Cabin Creek, W Va*
Quaker State Oil Refining Corp	*Farmers Valley, Pa* *Emlenton, Pa* *St Marys, W Va*
Richfield Oil Corp	*Watson, Calif*
Root Petroleum Co	*Eldorado, Arkansas*
Rothschild Oil Co	*Santa Fe Springs, Calif*
Shell Oil Company	*Houston, Texas* *Norco, Louisiana*
Sinclair Refining Co Inc	*East Chicago, Indiana* *Marcus Hook, Pa*
Standard Oil Co of California	*El Segundo, Calif*
Standard Oil Co of Indiana	*Whiting, Indiana*
Standard Oil Co of Louisiana	*N Baton Rouge, La*
Standard Oil Co of New Jersey	*Bayway, New Jersey* *Everett, Mass*
Sunray Oil Company	*Allen, Oklahoma*
The Texas Company	*Casper, Wyoming* *Port Arthur, Texas* *Lawrenceville, Illinois* *Lockport, Illinois* *West Tulsa, Oklahoma* *Dallas, Texas* *Fillmore, California*
Tide Water Associated Oil Co	*Drumright, Okla*
Union Oil Co of California	*Oleum, California*
United Refining Company	*Warren, Pa*
Waggoner Refining Co Inc	*Electra, Texas*
Wilshire Oil Company Inc	*Norwalk, Calif*
Wolf's Head Oil Ref Co, Inc	*Oil City, Pa*

Is your name written there? It ought to be

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

They are told to toss them back and get other men to answer; to call on various members of the group to explain what they believe to be the answer.

Men Who Talk Too Much

No doubt many marketers in conducting meetings have been worried by men with active imaginations who take up the time of the group by explaining their opinions on various matters, even though these opinions may have come to them only on the spur of the moment. This problem is answered in the manual of instruction in these words:

"Make the members of the group back up their assertions with proof based on actual experience or actual knowledge of salesmanship. Keep asking them why they believe as they do. This will have a tendency to discourage those who like to present unfounded opinions, and will make all members of the group more careful in their thinking".

Keeping Meetings Informal

Future instructors are told that in conducting a meeting of this kind not to observe parliamentary procedure; to tell the students it will not be necessary for them to address the chair, but rather they should pick up the discussion when another member of the group has finished. Suggestion is made that the chairs be arranged so that each member of the group can see all other members; to try to keep them close together so that no one has to talk loudly in order that all may hear.

How to Open a Meeting

The first procedure recommended in opening a meeting is to make a general statement of the topic and narrow the field of discussion down by defining the topic. Follow this by writing it on a blackboard. It is pointed out that this helps keep the discussion focused on the particular topic. In the leaders' outline, suggestions as to questions to be asked are given. If no one answers, suggestion is made that individuals be called on for an answer; when answered, another member of the group is to be asked what he thinks about the question that was given. Another point mentioned is that it is sometimes helpful to start an argument between one or more of the group and draw others into the argument by asking them to state their opinions.

Slowing Down Discussions

A simple but effective way of slowing down a discussion that is proceeding too rapidly to permit the subject being thoroughly analyzed is the simple procedure of asking individuals to clarify their statements, according to the teacher-trainer of this course.

Controlling Individual Members

In a group there are always several very distinct types of individuals; there is the smart-alek and the timid soul, and the know-it-all; the sincere boys and the fellows with complexes. These types are nothing new to professional teacher-trainers. Here is the technique suggested in handling some of these individuals:

The Know-It-All

These are classified as generally being bluffers. It is suggested that they be asked questions to show up their weakness; make them give reasons for thinking as they do. Refrain from commenting on the reasons given. If sound, they will not require comment; if unsound, as is more often the case, ask the group to comment on them.

To quote further from the instructors' manual: "Members of the group will be quick to "see through" this type of person, and they will enjoy putting him in his place. Letting them do it is even more effective than doing it yourself. At the same time, it safeguards you from gaining the individual's ill will or appearing to be prejudiced. If he proves too persistent, politely ask him to give others a chance to express their views."

The Friendly Person

Everyone will recognize this type. He is the fellow who is willing to be helpful, but holds back because he is afraid to express himself before a group. The recommended practice in this program is to encourage him—to lead him into discussion by engaging him in conversation. Direct questions will bring out his opinions. As a further suggestion, instructors are urged always to use a friendly tone of voice in addressing this type of person, and always to let their manner be very sincere. Further, instructors are told to build up confidence in this type of individual by protecting him through interpreting his statements if they are poorly made, so that others will appreciate his opinions.

The Unfriendly Person

This is the type of fellow who has caused many speakers to "blow up". He has a habit of maintaining a rather belligerent or derisive attitude. He is inclined to laugh at other members of the group who are trying to be helpful, but have difficulty in expressing their ideas. He will sometimes sit with an expression almost approaching a sneer and appear to be totally disregarding everything that goes on around him. Or, he may engage those near him in whispered conversation in which he will make fun or criticise the opinions of members of the group who do speak up.

Those preparing the instructors' manual recommend that direct questions be fired at this type of gentleman; that an opinion be drawn out of him which some member of the group

A sheet from Instructors' Manual and Discussion Leaders' Outline I.I.P.A.

Material to be presented	How to Present Material	Typical Situations and References
	It isn't necessary to offer guests refreshments when they visit you. It isn't necessary to wipe the headlights and the windshields or sweep out the car either, but it is the courteous thing to do, and it helps cement friendship. These courtesies add up to many friends and customers who find it more pleasant to do business with you than anyone else.	
IV SUGGESTED SERVICES AND ADDITIONAL MERCHANDISE	Both services are recommended every 1000 miles. Have members understand advantages of completing the 2 jobs at one time, economical safety time savers, etc., in terms of the customer.	Motorist comes in for car service saying he wants a good lubrication job, for he is going on a 2,000 mile vacation. Obvious needs: wheel packs, oil change, spark plugs cleaned, etc.
A. Related merchandise; grease job, oil change, tire tube, etc.	New tire should be protected with new tube, point out advantages and disadvantages.	A motorist has a wash job which doesn't look good. The paint is dull. Can oxidation process be explained and wax protection help him?
B. Seasonal merchandise: anti-freeze, wax job	Explain the fact that these are timely seasonable suggestions and are additional profit items. Give examples and have members sell a wax job to class member.	Servicing and Replacing Thermostats can be part of the winter changeover.
C. Larger quantity: 5 quart can of oil or 5 gallon can: "5 gallons vs. full tank."	Point out the fact that to the thrifty customer here is a good deal. Ask member to make such a presentation.	NATIONAL PETROLEUM NEWS, V. 33, p. 30, Feb. 6, 1941. "May I determine the safe level of your oil?"

He *has* to take chances

Your product *doesn't*

Meet a man who has to take chances—the man behind the wheel of a racing car. A bullet on wheels zooming down the straightaway . . . careening at terrific speed around curves . . . disaster, missed by inches!

Many products shipped in drums are taking chances, too—"racing" to their destination amid risks that make every mile a hazard. Yet this chance-taking is never necessary. Every product—your product—can be safeguarded by Tri-Sure Closures, the closures that eliminate leakage, waste, tampering, pilferage and substitution. Tri-Sure Closures have a seal which cannot be removed unless it is deliberately destroyed, a plug which is held tightly in place, a flange which assures complete drainage.

Send your next shipment to the "finish line" in the fine condition in which it started. Don't take chances with your reputation—be sure it is as untarnished tomorrow as it is today. You can do it by equipping every drum with Tri-Sure Closures. Write today for complete information.

AMERICAN FLANGE & MANUFACTURING CO. INC.
30 Rockefeller Plaza, New York

Tri-Sure

Reg. U. S. Pat. Off.

CLOSURES

will challenge. "During the first meeting", instructors are told, "you will have an opportunity to size up the individual members of the group and decide which ones will have the courage and inclination to take issue with him".

Knows the Answers

Cultivation of this type of fellow is recommended. Because, as is pointed out, he can be very helpful in conducting successful meetings. He enjoys expressing himself. Whenever the discussion has a tendency to lag, he can always be counted on to say something if a question is directed to him. The group is then asked to comment upon his statement, or criticise it, and thus revivify a discussion that had a tendency to die down before a conclusion has been reached.

"But", says the manual, "the difficulty of this type of individual is that he sometimes has a tendency to become dominating and talk too much. Where this happens, try "stealing his thunder". Give credit for his ideas to some other member of the group. Your judgment and the circumstances of the moment will indicate when you should do this, to whom you should give the credit and the manner in which to do it".

High-Strung Person

In every group there are one or more individuals who are nervous and extremely sensitive. They have a tendency to become angry or to suffer from hurt feelings as a result of criticism or disagreement on the part of the other members of the group.

For this individual, the recommended practice is to treat him in a particularly patient and friendly manner. Display a helpful attitude toward him. Their advice for handling "Mr. Touchy" is:

"Come to his rescue in critical situations until he learns to give and take in a discussion. In instances where you believe he has the right idea but he appears to be getting the worst of an argument because of inability to express his true meaning, try to help him explain what you think he means. In some cases it may be necessary to have a private conversation with an individual of this type to get him to see that discussion of this kind is a game of give and take".

OUTLINE OF TOPICS

To Be Covered by Leaders in the Indiana Independent Petroleum Assn.'s Fall Training Program

1. **"Introduction to more profitable service station selling."**
This covers the general scope of sales of petroleum products and accessories; shows students how they can improve their jobs by means of training.

2. **"Selling petroleum products."**
Teaches the students the importance of knowing merchandise facts; shows the road to a sale. This includes opening the sale, effective presentation, closing the sale, suggesting additional merchandise.

3. **"Keeping yourself effective."**
Here is covered the personality traits of an effective station salesman. Among factors discussed are posture, mannerisms, voice and English.

4. **"The modern automobile—its fuel and lubrication problems."**
This gets into the basic principles of internal combustion engines; fuel, use of lubrication charts, and minor ills of automobiles which may be remedied at the station.

5. **"Servicing the customer."**
This covers the greeting, general service ideas, and what the station man should know about parts of a car to service.

6. **"Selling the petroleum industry to the public."**
This discusses the history, trends, forecast and the part service stations play in the oil industry.

7. **"Keeping the station clean."**
Covers the reasons for good housekeeping and gets into the technique of cleaning routines.

8. **"Care and maintenance of petroleum products."**
This has to do with not only the proper care of merchandise, but equipment as well; the importance of maintaining appearance of merchandise.

9. **"How to sell cash merchandise to a credit-minded public."**
This discusses reasons for a cash policy, how to explain a cash policy to the public and meeting requests for credit.

10. **"Getting new business."**
Preparing sales presentations, planning solicitation and featuring specials, are covered in this section.

11. **"Selling 'plus' merchandise."**
This goes into the type of merchandise knowledge sales people should know: technical, care and features. Discussions on selling.

12. **"Cashing in on the lubrication department."**
Discussion of the reasons for adequate equipment and lubricants; keeping the department clean; possible sales of other items, recording and follow up systems, are some of the 8 lube features discussed.

12 and 13. **"Granting credit and making collections."**
Among the points discussed under the headings are: Collection procedures of methods, Controlling or limiting customer credit, Basic principles of collecting past due accounts, Opening a credit account.

14. **"Care and maintenance of non-petroleum merchandise."**
This goes into the details of the responsibility for proper care, display, storage of merchandise. How to keep the "store."

16. **"Buying merchandise."**
This covers such subjects as "mark-up," "mark-down," "turn-over," ordering merchandise and so on.

17. **"Planning and use of advertising displays."**
What, when and how to advertise; window displays, principles of design and color, are some of the subjects covered.

18. **"Selecting, training, supervising personnel."**
This covers the hiring, training, duties and responsibilities and personnel matters generally.

19. **"Keeping records."**
This covers all the important phases of keeping records; check out procedure, taking inventory, and other record matters.

Radio Program Publicizes Dealers

A new radio program was launched July 18 by Indiana Standard in which the dealer shares. The program is titled "Auction Quiz." Payment is made for questions sent in and used. The only place to secure official entry blanks for submitting questions is at the station of an Indiana Standard dealer. If the question is used, both the submitter and the dealer get $5 and the dealer gets publicity by having his name mentioned over the air.

New Britain, Conn.
Aug. 9, 1941

Editor, NPN:

I have been wondering for some time why the oil companies do not realize that they make far more profit on gasoline than heavy oil.

The talk is all of reducing gasoline —nothing said of reducing heavy fuel oil, most of which is used for heating large buildings and which could be temporarily replaced by coal with no hardship.

Most government buildings I know about are heated with heavy oil, yet there has not been the slightest suggestion from Mr. Ickes that the government help in reducing the need for tankers.

Anyone would expect that John L. Lewis would jump at the opportunity of getting more work for his miners.

Maybe this is too simple a solution to be interesting to those who think only in terms of billions.

Very truly yours,
(S) D. A. Johnson
The City Coal and Wood Co.

Safety-First Is Bad For Poor 'Josephine'

"Oh where is my wandering girl tonight?" might be the wail of Josephine's mother. But Josephine doesn't have a mother. It's like this—

Josephine is a monkey doll, owned by the Inwood, Long Island, New York branch office of Socony-Vacuum Oil Co. A sign in the office says:

"Meet Josephine. She goes to the next man who has a chargeable accident. He keeps her until another victim appears. If you don't want family trouble, keep this other woman out of your life."

It's all a clever scheme to encourage this company's truck drivers to observe all safety rules. Reports are that these drivers are much interested in the idea, and plan to dub Josephine's first owner "Jo-Jo".

However, for the past 5 months, Josephine has been as unpopular as those girls in ads who know nothing about Cuticura, Listerine and whipcord-stitched bust cups.

Retirement Plan Announced

Tide Water Associated Oil Co. recently announced to its employes the adoption of a non-contributory retirement plan in order to regularize retirement practice throughout the entire organization.

THE SHELL PHOSPHATE PROCESS

SELECTIVELY REMOVES H_2S FROM SOUR NATURAL GAS (OR INDUSTRIAL GAS) CONTAINING CO_2

DIRECT FIRING CAN BE USED IN THE REGENERATION OF THE FAT SOLUTION

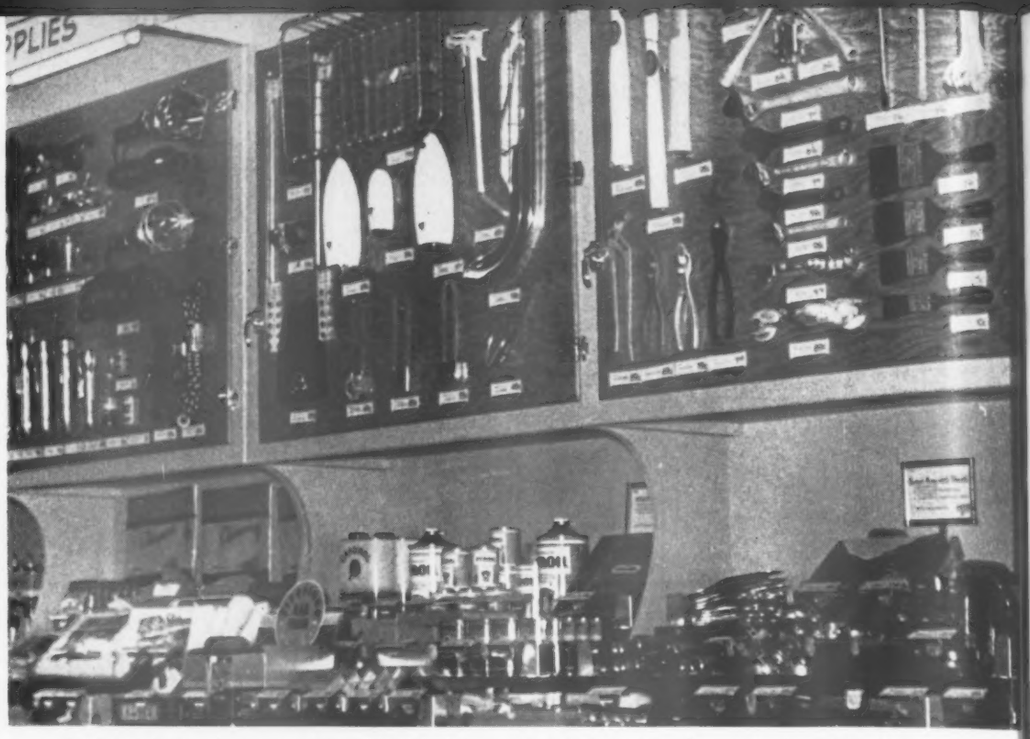
These are just two of a number of characteristics of the Phosphate Process which can provide you capital and operating economies

SHELL DEVELOPMENT COMPANY

100 BUSH ST., SAN FRANCISCO

LICENSORS: Shell Phosphate Process, Shell Solutizer Process, and Shell Regenerative Mercaptan Removal Process

Home appliance line installed at a station in a medium-rent apartment house section in Cleveland, takes the upper part of two of the standard display units. The shelves have been taken out of the table of one unit and tires are carried there; tubes are on the shelves under the table of the other unit



Assorted lines of accessories and tools for service stations to sell, as displayed in the wholesale store of the Star Auto Supply Co., of the Texas Distributing Co., oil marketing concern in Cleveland. At the upper left are electrical goods; center, bicycle accessories; right, household tools. On the tables below are cleaners and polishes and auto accessories. The displays are shown on the standard 3-ft. wide fixtures of wall cabinet, table and shelves, designed by the company, just as they would be set up in the station

Ohio Jobber Forms Separate Company To Handle Accessory Sales

Divorces Management, Salesmen and Credit Arrangements As Aid to Profitable Merchandising of New Lines

THE new automotive accessory and household appliance selling program of the Texas Distributing Co., independent oil jobber of Cleveland, is built around these three steps:

1—A separate company, separate salesmen, and separate warehouse for this merchandise. Selling and handling these lines is entirely divorced from the business of the oil company.

2—Standard fixtures for displaying and stocking this merchandise in the station, that make it easy to start out selling accessories in a manner that stands a good chance of being profitable.

3—A practical approach to the individual station operator through showing him how to increase his margin of profit per gallon of gasoline sold. Since the average operator is accustomed to considering his business in terms of his margin on gasoline, the company talks to him along the same line. For every station, it figures gross profit per gallon and operating expense per gallon and shows the operator what an increase of even a fraction of a cent means in monthly net income. Selling new lines of merchandise, which are not competing with other stations, and where extra help will not be needed at least at the start, is the best way to increase net income, they point out.

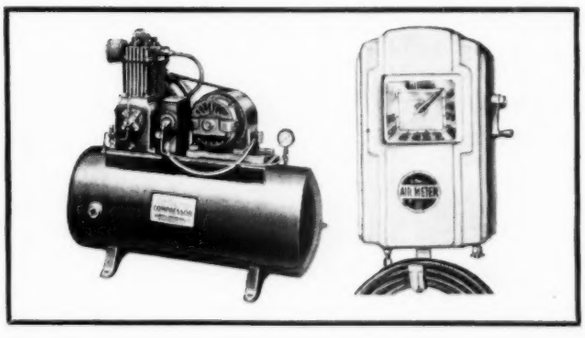
This station building, in a residential suburban town near Cleveland, was designed to sell many kinds of automotive and household merchandise. The sales room, at the right, is approximately 25 by 15 ft. in size, and has display tables down the center and the standard units of tables and wall cabinets along the back wall, with a radio compartment in one end

THE Texas Distributing Co., which has been operating in Cleveland and surrounding territory since 1927, like many oil marketing companies, had an unfortunate early experience in wholesaling tires and accessories. It found itself carrying goods in its warehouse that were not moving, with no one on its sales or executive staff whose sole job it was to sell this line. M. E. Glass and D. N. Meyer, owners of the company, realized that some way must be found to pull up station profits, based on their present volume of gasoline sales, if they were to keep the station operators attracted in their propositions and maintain station rentals at a point where they would cover the investment the company had in the station properties.

The two owners sat down with New-

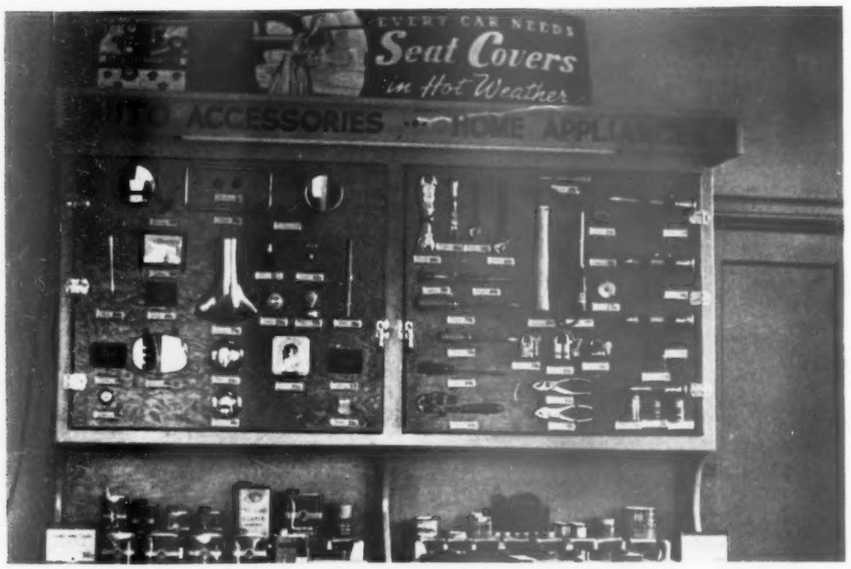
No more big bills
for free air
★ ★
Gilbert & Barker is producing for the Army and Navy precision materiel for National Defense purposes, as well as supplying the Gilbarco products you know. These regular Gilbarco products continue to be available to our customers.
★ ★

MOTORISTS take air meters and air compressors for granted. But just let your air equipment go sour—and there goes a disgruntled customer! • Smart operators install GILBARCO AIR METERS and AIR COMPRESSORS and stop worrying about the air situation! The name "GILBARCO" automatically insures faultless, dependable equipment! Gilbarco compressors have Timken main bearings—drop forged crank-shafts—totally enclosed centrifugal unloaders. • For *high* efficiency and *low*-cost operation, you can't miss the boat if Gilbarco takes care of your "air department." Send for *Bulletin AM* today!



GILBARCO AIR METERS AND AIR COMPRESSORS

GILBERT & BARKER MANUFACTURING COMPANY
Springfield, Mass. Toronto, Ontario, Canada



Two standard 3-ft. wide display units for merchandising accessories as installed in a Cleveland station. Concealed fluorescent tubes at the top illuminate the display on the cabinet doors and on the tables below

man F. Squire, sales promotion manager, and after considerable thought and study as to how other types of retail outlets were handling these lines, their own program was evolved, which differs considerably from that of most oil marketing companies. The company's territory extends east from Sandusky about 120 miles to the Pennsylvania state line and south about 25 miles from Lake Erie. It has approximately 240 retail outlets, with bulk plants at Lorain, Medina and Painesville in addition to its main terminal in Cleveland. It does not go after farm business at all. Its accessory merchandising program is applied at only selected stations.

The first step in the new policy, in wholesaling all lines outside standard petroleum products, was to set up an entirely separate organization, the Star Auto Supply Co. It has its own headquarters, in an automotive jobbing district in Cleveland, conveniently located for station operators to reach. It is a small store unit, with a display window similar in size to that of a station. Merchandise is warehoused there and displays are carried along the walls.

An outside manager was hired for this company, to further divorce its operations from those of the oil company. This man had 10 years' previous experience with another oil company in supervising station operations. It was decided this experience would be better than that of someone who knew accessory selling but not about problems peculiar to service stations.

Standard Fixture Devised

Another important step was working out a standard method of displaying and stocking accessories and household lines at the stations, and not leaving these to the individual operator's judgment. For this purpose a standard fixture—a combination of wall cabinet and table with shelves underneath—was devised. These come in 3-ft. wide units. They are of metal, in uniform design and decoration, so any station's needs can be met with multiples of the units.

These fixtures are for both display and stocking the station's lines of small accessory items. They are about 7 ft. high, with a fluorescent tube at the top for illumination and a sign calling attention to the particular goods carried in that unit. The upper part of the unit is a cabinet with the stock on shelves and the display on the outside of the door. Step-up blocks can be used on the table top for display of small items. The shelves underneath are for stocks, or for display of tires, radio or other large pieces. These units cost the company approximately $40 apiece and are installed at the station without charge to the operator, just as an oil company puts in pumps and lifts to help the station get more business.

Assorted Lines Made Up

The management of the automotive supply company has worked out practical assortments of various types of accessories, household appliance and other items. Each assortment can be handled complete in either the cabinet or table portion of the display unit. For example, there is a selected assortment of standard auto accessories; of household tools (including wrenches, pliers, locks, chisels, screw drivers, hammers, paint brushes, flashlights); of cleaning and polishing fluids, pastes and cloths; of electrical items (including fuses, light cord, sockets, bulbs, flashlights, friction tape); of truck accessories (mirrors, reflectors, marker lights, clearance lights, lanterns, flares, fire extinguishers) bicycle accessories (handlebar grips, locks, headlights, tail lights, mirrors, chain guards, handlebar baskets); household electrical appliances (irons, food mixers, toasters, clocks, waffle irons, percolators). The selection of the individual items in each assortment is based on experience with their rate of turnover in station sales.

After it has been decided what combination of lines will likely sell best at the individual location, they are put in display units and taken to the station and installed. The installation is done by the manager of the accessory wholesaling concern and is not left to the judgment of the individual operator as to where to place the units and how to display the items. Being only 26 ins. deep, the units can be used effectively in the salesroom of most stations without alterations. Each item is priced by tag, plainly displayed, so even the price to be charged is decided by the management and not left to the operator's judgment.

Sell By Showing the Line

In starting out to sell his new lines, the station operator is urged not to try to sell from the pump island, not to push any one item, and especially to avoid high pressure methods. He is advised to tell his regular customers, that the station, for their convenience, has added new line of goods (describing the lines chosen briefly), and that they can be bought at prices competitive with any other stores. The customer is invited, if he has the time then, to come in and inspect the line and, if not then, to come in when he does have a few spare moments. It has been found that curiosity will induce most regular customers to look over the new goods and, since they are in the open, where they can be picked up and inspected, and the price plainly shown, sales frequently come at the first visit.

The Star Auto Supply Co., does not approach all retail outlets of the Texas Distributing Co. with the proposition to handle its new lines of merchandise. The accessories manager studies the individual outlets and picks out those he thinks can profitably handle wider lines. Salesmen for the oil company also recommend certain outlets to him.

Sizing Up the Outlet

In sizing up possibilities at the individual outlet the first factor considered is the number of regular customers. The company has set up a conservative estimate of the automotive supplies the average car owner buys in a vear and the proportion of these he will buy at the station where he regularly buys gasoline, oil and lubrication services. Company says this estimate is not based on thousands of gallons of gasoline sold; for the reason that a driver who uses more gaso-

8,000 Lovely Songs

IN THE NAME OF FINER SERVICE

15 years and more have gone since Cities Service erected a radio milestone with its weekly program of distinctive musical entertainment. During that time, 781 of these Friday evening concerts have been presented, thrilling a nationwide radio audience with more than 8,000 lovely selections delivered by some of radio's foremost artists. Indeed, in recent years, the Cities Service Concert has risen to the dignity of a national institution.

As such, it is altogether fitting that this fine program should go forth in the name of petroleum products and automotive services held in such high repute by the motoring public today. In building the sterling reputation that Cities Service enjoys, we have brought to bear every advantage of constant research, thoroughly trained personnel and the finest of raw materials and equipment.

And now to you, the 16,000 Cities Service dealers who have worked with us in single purpose, we say this: The present emergency notwithstanding, we will continue to spend our every effort to maintain and to further the peerless quality that our emblem has come to signify.

We are confident, that, as our 16,000 partners, you, too, will continue to do your share in keeping the public ever conscious that Cities Service dealers really mean in the fullest sense of the words—"Service is our Middle Name."

CITIES SERVICE OIL COMPANY

NEW YORK — CHICAGO — SHREVEPORT

line per month than the average, generally does not buy any greater volume of automobile supplies (aside from tires) than does the average driver.

The next factor studied in determining what new lines will move best in any particular station is type of neighborhood. For example, if it includes a number of medium-rent apartment houses, where tenants move frequently, experience has found that small household necessities, such as paint brushes, screw drivers, wrenches, hammers, friction tape, are in demand evenings and Sundays when hardware stores are closed. If the station is in a district of small homes, where the men tinker around the house and yard, a more extensive line of tools may be carried. For stations that truck drivers visit, there is an assortment of truck accessories.

Where there is a large number of bicycles in the neighborhood, a display board of tools and "bike" accessories may be suggested. Again, if a large proportion of the men living nearby work at outlying plants and factories and seldom have a chance to shop downtown, a line of commonly used household electrical appliances, including radios, may sell at the station. At such stations, lines of sporting goods with which the operator is familiar frequently can be sold in profitable volume. One station lessee, who is himself an enthusiastic golfer, has sold a number of sets of clubs to men who don't have a chance to get down town to look over the lines in the big stores.

With payrolls up and men working more hours a week, the management of the Star Auto Supply Co. sees opportunity to sell seasonal goods at selected service stations. It believes in months to come more shopping will be done where it is convenient, and less where time has to be set aside for a trip to some remote shopping center. For example, the company is now arranging a line of toys and gift merchandise for Christmas. Since it is now common practice for hardware and drug stores and other neighborhood stores to carry holiday merchandise, the management believes service stations also can sell these lines. They will be put on display early, so regular customers will know they can conveniently do some of their Christmas shopping at the station they patronize regularly.

Study Gross Gallonage Profits

The next step, after identifying the possibilities of the particular location, is to analyze the station's present business. The gross profit from gasoline, oil, grease, lubrication jobs, car washing and all other services for the preceding month is divided by the number of gallons of gasoline sold, to get the gross profit per gallon. This figure is generally found to be from 5.5 to 6c a gal. Then all the expenses of the station for the month are taken, excluding compensation to the proprietor. Included are many items the average operator does not figure as current expenses, such as interest on his investment in the station, insurance, losses, license fees, washroom supplies, donations, and advertising, (if it includes only the postage on lubrication reminder cards sent out) . These total from 4.75 to 5.5c a gal. Then the operator is shown how the Star Auto Supply Co. program, backed by intelligent selling effort on his part, but without any proportional increase in his expenses, will add 1.5c or more per gallon to his margin of gross profit. Some of the stations which have taken on the accessory and other new lines now have a gross profit of 8 to 10c a gal., the company management states.

Credits Handled Separately

Another factor which simplifies the taking on of the lines of new merchandise by the station is that credits are handled entirely separately from any arrangement between the Texas Distributing oil marketing company and the station, and on the same basis the automotive supply houses follow; that is, 30 days open account, with 2% off for 10 days. On tires the same credit practice is followed as the tire companies use. Their practice is to ship their accounts tires and tubes for late fall, winter and early spring needs and to make 3 monthly billings, starting April 10. This makes it convenient for the station to stock winter needs of tires and tubes in the fall and still meet obligations to the oil company for needed stocks for Winter Change-Over sales. Collection of all accounts for accessories and other new merchandise is entirely the responsibility of the Star Supply Co.

The stations arrange with customers for time payments on tires and radios or other merchandise, entirely on their own responsibility. The wholesale house points out that the down payment and what is paid in by the customer in 30 days will generally provide enough for the station to pay the wholesaler for the merchandise as scheduled.

Display stand for garden tools. Full assortment in this line includes lawnmower and garden hose. Some stations move the display outside, where it can be seen from the pump island

All stocks of the new merchandise are carried at the warehouse in the automotive jobbing district and deliveries are separate from those of the oil company. For accounts outside greater Cleveland, the company ships parcel post, which insures delivery the next day. An independent cartage company is used for city deliveries. In either case if the shipment weighs over 100 lbs., the automotive wholesaling company pays the costs; if less than 100 lbs., the consignee pays it.

Benefits to the Oil Jobber

The benefits to the Texas Distributing Co. as an oil marketing concern, in the new program are catalogued by the management as follows:

1—It provides the company an additional source of profit in the revenue from wholesaling accessories to its station accounts. While the program at present is limited to its own stations, it may later be extended to dealers not handling the oil company's line of gasoline and oils.

2—It gives the oil company a better chance to maintain rentals from the station lessees at a point that carries the company's investment in the station. Where the lessee comes to the company and says, on the basis of his gasoline volume, he must have a reduction in the rent, or some other concession, the oil company refers him to the accessory supply company, to demonstrate how he can increase his income on the same volume of gasoline business.

3—The new system provides uniformity in the appearance of the stations and in the lines of goods it handles. Over-stocking and the selection of ill-advised lines is prevented, where the station operator deals only with a representative of the Star Auto Supply Co. The number of unsightly signs around the station premises is kept to a minimum.

4—The taking on of new lines, under experienced supervision, enables the station to increase its profits and makes it possible to hold operators who would otherwise be leaving for higher pay jobs.

Principal benefit to the station operator from this program of accessory merchandising, say the oil company executives, is that it builds him up in his own mind as a storekeeper, on a par with others in his neighborhood, and lifts him out of the class of a

MODERNIZE *Your Rest Rooms* *and* MULTIPLY *Your Sales*

. . . WITH VEOS IT'S JUST A ONE DAY JOB!

VISIBLY clean rest rooms are a modern necessity. Dingy, dirty toilets are shunned by the best class of trade who inspect the rest rooms before ordering "the works" —an oil change, over-all greasing and a wash job. Veos tile rest rooms pay for themselves quickly out of increased business and savings in maintenance. There are 15,000 Veos jobs in the oil industry alone—just ask the man who has one.

The installation of VEOS is a quick, fool-proof and permanent job. The insulating foundation sheet is applied right over existing walls and is mechanically grooved to insure perfect alignment of every tile. The individual tiles are permanently secured to the foundation sheet with special mastic, and the joints then waterproofed and "pointed" with special grouting cement in colors to match or contrast with the tile. The finished job is a colorful, gleaming genuine *porcelain* enamel surface—as easy to clean as china—*with a factory guarantee of 25 years against surface crazing, cracking, or color fading.* Do not confuse VEOS genuine *porcelain* enamel tile with materials having a so-called "baked enamel" finish, which is only a *painted* surface.

VEOS offers you a complete line of *theft-proof* accessories. Skilled applicators assume responsibility for the installation of Veos walls, flooring and accessory items —a turn key job. Consult the Veos Dealer, listed in your classified telephone directory, or write

DAVIDSON ENAMEL COMPANY
DEPT. C CLYDE, OHIO

MORE THAN 15,000 VEOS JOBS FOR 20 leading oil marketers.

VEOS *Porcelain Enamel on Steel* **TILE**

1. Foundation sheet applied over present walls —insulates and deadens sound.
2. Individual tiles fit into mechanically grooved spaces, in perfect alignment—securely held with special adhesive.
3. Joints are waterproofed and pointed in matching or contrasting colored grout to make a beautifully finished job.

The Artistry of Ancient Ceramics **PLUS** *the Permanence of* **MODERN STEEL**

gasoline dispenser or a "grease ball." In many cases the stations have been cleaned up and better housekeeping has been maintained after the new line was installed and the operator, appreciating that he had to keep track of his sales of this merchandise, improved his bookkeeping for the station.

Some Stations' Experiences

The reactions of some of the station operators who have been following this new mercchandising program for some months are given below, as told to a NATIONAL PETROLEUM NEWS representative.

Their losses of small items, through theft or carelessness, have been smaller than was anticipated, even though customers or others are left alone in the sales room when the station attendant is called outside. One proprietor said his losses for the past month had been $2.40 out of sales of approximately $150 worth of this merchandise. Since he does not yet make out sales slips showing individual items sold, he believed part of this loss is on small items sold, but no record made of the sale. Another station, where most of the trade is colored, reported merchandise losses negligible.

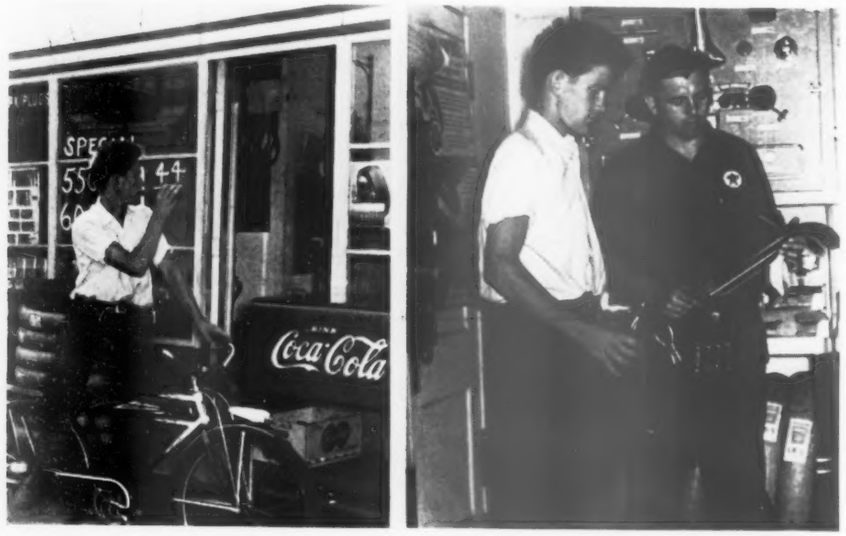
It is not general practice yet to make out sales slips listing individual items in all sales, but several station proprietors said they were going to adopt this system, as the only means for insuring a complete record of sales.

Sales of merchandise under the new system of displaying it in the open, with the price plainly tagged, are larger than of the same goods as formerly handled. One proprietor said in June, his best month to date, his sales were $275, including tires, while before they averaged only $50 a month, without including tires. All stations said it had helped their gasoline business some, through picking up new customers.

No proprietor reported complaints from neighborhood hardware stores or electrical appliance shops, over the station taking on competing lines of merchandise. Most men seemed to feel that neighborhood stores themselves handled such a large variety of merchandise, including lubricating oils, that they could not object to a station selling some of the merchandise they carried.

PROPRIETORS sometimes have objected to individual items in the assortment installed at their station, until they understood that the selection was based on actual experience of other stations. One proprietor said he remonstrated when a carpenter's hammer was displayed on the board of household tools installed at his station. While it was being put in place, he argued with the manager of the wholesale accessory company, who himself makes up the display and sales units and was installing them. "I just know this station can't sell hammers", he said, pointing out that there were hardware stores in the neighborhood and that most of the people that came into the station were of the kind who always kept household tools on hand. While he was talking a man came into the sales room, looked at the board going into place and said, "A hammer! Just what I've been trying to remember to buy." So he bought the only one in stock.

Some stations have found that a soft drink cooler, in the right spot, where the man cooling his thirst can see the accessory and tool display, helps merchandise sales. Those that handled bicycle accessories said that sales could be traced to boys stopping for a drink and becoming interested in the display board of bicycle items on the wall of the sales room.



Neighborhood youth stops at Texas Distributing Co. station for a soft drink and is attracted by the display of bicycle accessories on the wall inside. Proprietor J. B. Ellis, scenting a future sale, demonstrates a new chain guard

Drivers and Company Share in Dividends Of Safety Plan

Seaside Oil Co., Santa Barbara, Calif., recently presented cash awards to 13 truck drivers who had completed 2½ years of accident-free driving. H. B. Kellogg, vice-president, who made the presentation said, "Their fine safety record of 2½ years without an accident is indicative of the care expected of and exercised by all of our drivers. We find that rewards for careful driving serve as an incentive to keep safety records clean, this in turn being reflected in lower maintenance costs for our rolling equipment."

In 1938, Seaside established a plan for rewarding safe driving.

A system of demerits, based on severity, for each accident is assigned to each driver of company equipment. Assignment of demerits is determined by a safety committee comprising 2 members of Seaside's organization and a representative of Seaside's insurance carrier. Attitude of committee is largely governed by whether or not the drivers of company equipment could have prevented an accident regardless of where the fault might lie or any legal responsibility.

Cash awards are given drivers on the following schedule: One year of accident-free driving entitles driver to $10; an additional 6 consecutive months of safe driving, or 18 months in all, entitles driver to an additional $10; 24 months, $10 more; 30 months, $15 more; 36 months, $15; 42 months, $20; 60 months, $25. For each additional 6 consecutive months $25 is awarded.

If a driver has an accident for which he receives demerits, he loses all his standing of consecutive months and must start at the bottom.

Since the inception of the plan, 55% of Seaside's truck drivers have completed over 30 months of accident-free driving.

Free Exhaust Analysis Offered to Save 'Gas'

Cities Service Oil Co., through Washington, D. C. newspaper ads, is offering free "Power Prover" readings to motorists as an aid to the gasoline saving program. The "Power Prover," Cities Service explains, is an instrument which, by analyzing exhaust gases of an automobile, accurately measures the amount of unburned gasoline being wasted.

At the same time, Cities Service is passing out leaflets headed "What you can do about it", telling the story of the East Coast gasoline shortage and what motorists can do to reduce consumption. Leaflets are being passed out through all company stations in Washington, D. C., and were passed out to the studio audience at the company's weekly radio broadcast from New York on Aug. 8.

These five General American Terminals didn't just happen to be spotted where they are. Each location was chosen for special, strategic reasons. Each site embodies outstanding economies in freight rates and shipping facilities for every producer of bulk liquids. Each General American Tank Storage Terminal, of course, gives you seven exclusive advantages . . . advantages that are yours without a penny's investment on your part. See what you get and then see General American before you make another shipment!

Only General American Gives You all these Advantages:

1. NO CONTAMINATION. Separate pumps, lines, storage zones for dissimilar commodities.
2. MODERN PROTECTION. Latest safety appliances; lowest insurance rates, minimum evaporation losses.
3. RELIABLE CUSTODIANSHIP. Our warehouse receipts are highest type of collateral everywhere
4. INDEPENDENT OWNERSHIP. Strictest privacy; we do not buy, sell or refine any commodities.
5. NO WHARFAGE. There is no wharfage charge at our own private docks.
6. SPEED WITH SAFETY. Day and night crews, complete facilities, eliminate all shipping delays.
7. WORLD'S LARGEST TANK CAR FLEET. One car or hundreds, wherever and whenever needed.

Strategically located to serve you!

GATX GENERAL AMERICAN

GENERAL AMERICAN TANK STORAGE TERMINALS

Goodhope, La., and Westwego, La., (Port of New Orleans) Corpus Christi, Texas
Carteret, N. J. (Port of New York) Galena Park, Texas (Port of Houston)

A DIVISION OF GENERAL AMERICAN TRANSPORTATION COMPANY

MERCHANDISING

This is a readers' forum on merchandising of petroleum products, automotive accessories and allied lines. Let us have your ideas on how to improve selling at stations. Address: Merchandising Editor, NATIONAL PETROLEUM NEWS.

● Gulf Distributor Hugh O'Gara of Lafayette, Indiana, recently worked out a plan for lubricating small fleets of trucks. He says now he wishes he had thought of it long ago, for it added $100 monthly to one of his dealers' volume, plus his own distributor profits.

One of O'Gara's dealers, George Acherson, told him that he was missing a lot of lubrication business from small fleets because their schedules made it difficult to send the trucks to a service station once a week.

"Then why don't you go to the trucks", O'Gara asked, half jokingly. But the more he thought about it, the more he became convinced that he had an idea. So he told this dealer that he would gamble some equipment and the loan of a small truck against his selling ability. This was a deal. So a small service truck was equipped as follows:

Portable compressor with ½ h. p. motor and extension plug-in cord. (The compressor is bolted to the truck bed).

Air hose for compressor.

Chassis gun, universal joint gun, gear lubrication service kit, and a supply of lubricants.

Battery testing outfit.

Water can.

Stock of small accessory items, such as radiator caps, wiper blades and so on.

Then the operator got busy soliciting business. Almost immediately he secured the account of a small freight truck line with 9 units. These trucks average about 1000 miles a week. When the dealer pulls in "on location" with his equipment on the pick-up truck he is ready to do anywhere from $12 to $20 worth of business in 3 or 4 hours. He is authorized to replace lost radiator and gas tank caps, fan belts, battery cables, wiper blades and other small items. While $1 is the flat price for the job, many of them run nearer $2 with the additional plus sales.

A ticket is written on every job, and a copy left with the truck fleet operator. Notations are made of dangerous tire cuts, and anything else about the truck that needs attention.

The plan worked so well that 2 other fleet operators *asked* for similar service. These 3 accounts are about all Acherson can handle at present, since most of the work is done late at night and Sunday afternoon. The truck is also used for road service and other emergency operations.

Acherson has now purchased a small trailer which he will use in the work.

It is Mr. O'Gara's present plan to co-operate with his other dealers who may want to get in on this new marketing idea now that he has found that it really works.

Mr. O'Gara states that the plan would work equally well by bolting a small compressor to the trunk compartment of a coupe or mounted on a small 2-wheel trailer.

Distributor O'Gara figured that if mobile lubrication units were practical in the army, they would be a good thing for an oil distributor. Here's his first mechanized unit in action

* * *

SABOTAGE?

Independent marketers will be interested in comments made to NPN by the safety engineer of one of the largest oil companies as to methods being followed by that company in operation and inspection of bulk plants in order to prevent possible sabotage. Says this authority:

"Fences should be of heavy woven wire, a minimum of 6 feet in height, topped with several spans of barbed wire placed on brackets at an angle of 45 degrees, pointing inward over the plant property.

"Fire protective equipment should be adequate to take care of any emergency without outside assistance. The amount of equipment necessary should be computed according to the standard set up by the American Petroleum Institute and the National Fire Prevention Assn.

"Flood lighting should be installed to cover all fencing.

"In most instances, it is advisable to employ watchmen for a 24-hour service. In addition to patrolling the enclosure, it should be the duty of this watch force to thoroughly inspect packages being brought into the plant, particularly toward the close of the shift and during the night hours.

"In some remote instances it is advisable to lock all openings to tanks where the property is not guarded, and all deliveries going out whether by tank car or tank truck should be sealed with special seals, carrying a serial number or other means of identification."

* * *

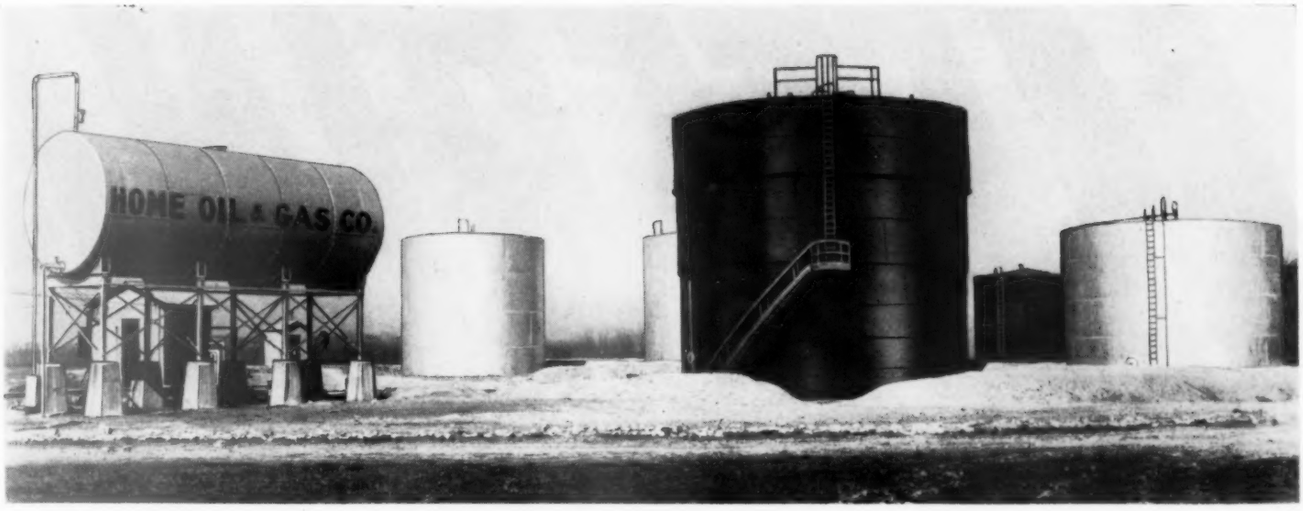
PSYCHOLOGY

George T. Farrall, Fleet-Wing distributor in East Liverpool, O., is an opportunist, which may be one reason he is one of the state's outstanding independent oil marketers.

"If things are not right, find out why and do something about it right now", seems to be his code.

For instance his dealers told him that folks were too busy these defense days to change their oil. A study of

(*Continued on page* 44)



Home Oil Co.'s barge terminal at Henderson, Ky. New 300,000 gal. storage tank built with expansion roof is shown as dark tank in foreground. Company expects evaporation savings of about 63,000 gals. of gasoline through addition of this equipment. Company operates in 12 northwestern Kentucky counties. Photo courtesy Graver Tank & Mfg. Co., Inc.

Vapor Saving System Reduces Losses At Kentucky Jobber's River Terminal

ONE OF Kentucky's largest independent oil marketers, the Home Oil Co., Henderson, of which G. D. Given is president and general manager, is in the midst of its own private defense program.

That company has declared an "all out" campaign to stop losses in handling of oil products in bulk. And, as gallonage runs 700,000 gals. a month, such a program is no small matter.

The latest and largest project in this program is the recent completion of a 300,000-gal. expansion roof type of storage tank to take care of breathing and evaporation of not only that tank, but also 5 additional storage units with a total capacity of 1,400,000 gallons at the company's Ohio River terminal in the outskirts of Henderson. The company estimates that a saving of approximately $6000 per year will be made on evaporation losses as a result of this installation.

Evaporation losses with a company of the size and kind of the Home Oil Co. would naturally be a problem. All of its gasoline is shipped to the terminal by barge. About half is supplied by Sinclair from Westwego, La., being transported there by tanker from the refinery on the Houston ship channel. The balance of the gasoline, bought on the open market, comes from Houston and New Orleans. Company leases 3 barges to transport this gasoline. These barges take from 2 to 3 weeks in delivering their average 300,000 gal. cargo. In the course of this water trip, evaporation loss, according to Home Oil Co. officials, is approximately ½ of 1%.

An addition loss of ½ of 1% is encountered in delivering the gasoline from the company's water terminal to its own bulk plants.

Before installation of the expansion roof, the evaporation loss at the terminal was approximately 1%.

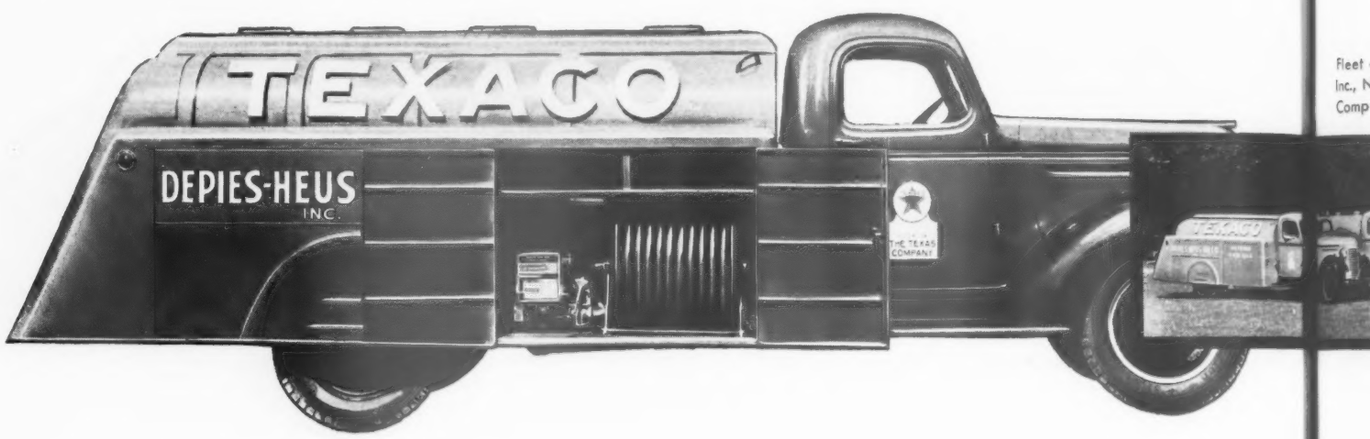
Added to these losses were the uncontrollable losses, such as spillage, occasional careless handling, bad debts and so on.

All of these were problems from the time the plant was built in 1938, when the storage consisted of one 300,000 gal. gasoline tank and one 100,000 gal. kerosene tank. But as the volume of business grew, gasoline losses became more and more of a problem.

G. D. Given, Jr., who is vice president in charge of sales of the company, experimented with a vapor recovery system which he built himself. Excess vapors were drawn from the tank through a vapor line. A valve control mechanism mounted on the tank allowed the vapor to flow into recovery lines when pressure was built up. By means of an electrical cooling

Unloading one of the three 300,000 gal. barges which Home Oil Co. leases to transport gasoline from Texas and Louisiana. Barges require from 2 to 3 weeks to make the trip

METERING



Advisory engineers urge scientific METERED CONTROL—in a first line attack on waste in the distribution of oil, gasoline and other petroleum products. Shrinkage down to 0.25 to 0.50%... this is a mark for BULK PLANTS to shoot at. And every gallon, in TANK TRUCK DELIVERIES, to be accounted for. IT CAN BE DONE!

How to Guard Against Wastes?

Whatever the eventualities in petroleum product supply, one fact is plain: This is no time for waste in marketing!

The jobber who has had a bargeload on order for a month, will want to keep a jealous eye on every gallon of receivals or withdrawals. Every marketer and retail distributor, with customers' needs to consider, will not look kindly upon unaccounted-for outages. While the consumer will want every drop that is coming to him!

This, then, is a time which imperatively demands the strict accounting of gallonage, the safeguards against carelessness in product handling, against fraud and hidden leaks . . . demands that can be met only through METERED CONTROL.

Meters on the Loading Racks

Wide investigations reveal that loading rack metering cuts unaccounted-for outage close to the vanishing point, and ordinarily saves from 1% to as much as 6% of the volume of product sold.

It is the surest preventive of overloading or underloading, spillage, theft, argument . . . discloses any truck tank miscalibration at each fill . . . and protects bulk-plant operator and his customers alike. It provides accurate accounting of sales receipts which—checked against receivals—spots handling and storage leaks and wastes.

One oil company, during the first month's use of a RED SEAL meter, showed a saving almost sufficient to cover the entire price of the meter. Another company, which had been having a great deal of gasoline shortage, reported as follows: "With the aid of our first Neptune meter we were able to hold a very strict control on stocks. . . .We feel that the expense of installation has been returned to us many times over . . . would not think of operating a bulk plant for either gasoline or fuel oil without complete Neptune equipment throughout."

Bulk Plants Under Full Metered Control

By putting a meter on the incoming line as well as metering the loading racks, and thus accurately checking receivals against metered outgo, the most thorough means are ensured for detecting storage and pipeline leaks—such as underground fuel oil seepage. Used hand in hand with the RED SEAL stock record-keeping sys-

NEPTUNE METER COMPANY: Main Office, 50 W. 50th St., New York, N. Y. Branches at Atlanta, Boston, Chicago, Dallas, Denver, Kansas City, Los Angeles, Louisville, Philadelphia (Philadelphia Meter Co.), Portland, San Francisco, Toronto.

Gasoline Dispensing Pumps
Meters For: Receivals • Storage Transfers • Loading Rack • Delivery Tank Trucks

NEPTUNE

TO CUT WASTE

Fleet of fuel oil delivery tank trucks operated by Depies-Heus, Inc., New Holstein, Wisc. Equipped with the favorite RED SEAL Compact Meter with Auto-Stop and Print-O-Meter Register.

Bulk plant RED SEAL Meters—Direct-Reading and Round Dial types—metering from storage to transport truck—at marine terminal of Feldman Petroleum Co., Chicago.

tem, RED SEAL metered plant-control can be relied upon to identify and isolate even unsuspected leaks, and to help confine shrinkage to normal evaporation and temperature-change losses. Storage and transfer losses readily can be halved.

Meters on Delivery Tank Trucks

Drivers loading and unloading by meter are far less likely to overload, to be careless about spillage or overfilling customers' tanks—because the meter records such wastes against them. It is not unusual for a truck meter to effect reductions of 60% to 80% of "unaccountable" losses.

All wastes now are serious. For example, fuel oil dealers may be subjected to rationing. The retail distributor must be certain he gets full amount from the bulk plant (one reason why he favors loading rack metering). By the same token, he sees the need for a meter on his own delivery truck . . . as a double-check of his tank, to be sure the proper quantity of oil is delivered to him, and to make equally certain that he delivers the exact quantity ordered by his own customers.

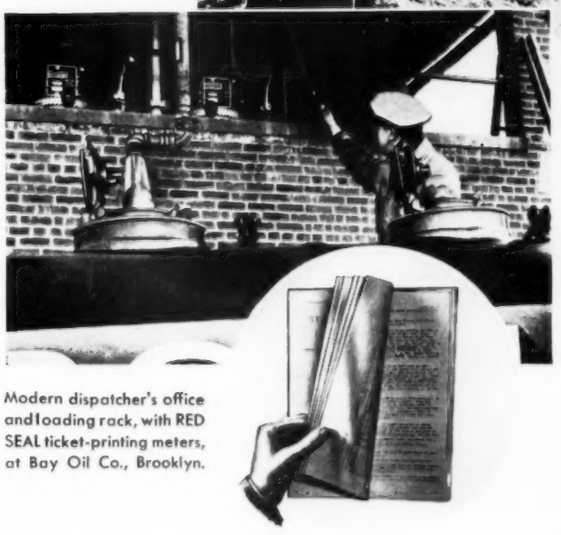
Customers' goodwill must be maintained during periods of stress. This means not only supplying the customer promptly, but also insuring him of full measure. To a consumer, for instance, the use of a ticket-printing meter—such as the RED SEAL equipped with Print-O-Meter Register—brings complete confidence.

Truck metering likewise permits use of the efficient "degree-day" system of delivery—which saves truck-man-hours and reduces truck gasoline consumed per gallon of oil delivered.

Annual Return on Meter's Original Cost

A prominent consulting engineer who states that a meter returns, each year, 25% to 100% of its initial cost, is not extravagant in his claims. Bulk plant shrinkage, for example, easily can be kept down to ½ of 1%—including the company's own retail deliveries—by ***Metered Control.***

Authoritative information on petroleum meters, and the wastes they eliminate, can be obtained promptly from any Neptune office.



Modern dispatcher's office and loading rack, with RED SEAL ticket-printing meters, at Bay Oil Co., Brooklyn.

RED SEAL *Metered-Control Plan for Bulk Stations.* In your own self-interest, learn about this Red Seal Meter Master System and Stock Record Control Plan for Bulk Stations. It is a combined engineering and accounting system which has become standard for the positive, stabilized control of throughput. Simple to put into practice . . . a proven insurance against unaccounted-for losses. Bookkeeping and tax computations also are greatly simplified.

1724

RED SEAL METERS

NEPTUNE RED SEAL METER CO.

system, the vapor was converted into liquid. But while this system converted the vapor to liquid under ideal operating conditions, it was found that the system was not practical because of the great amount of supervision necessary.

So in the fall of 1940 the company called in an engineer who made a study of the mean annual temperatures, quantities handled (they estimated that 10,000,000 gals. would go through the plant in 1941), average volatility of the gasoline, and other factors on account of design of the tanks.

As a result of this study, an expansion roof installation was made. At that time there were only 5 tanks in the plant, and additional storage space was needed. It was decided to build another 300,000 gal. tank equipped with expansion roof. This roof was designed with a lift of 10 ft., giving a maximum of 14,220 cu. ft. of vapor space. The other tanks were manifolded into it by lines leading from the vapor space of each.

The vapor spaces in the other storage tanks being connected with the expansion roof, makes it possible to time operations so that gasoline can be pumped out of one tank while another is being filled. Thus complete equalization or balancing of vapor space in the entire system is obtained. This results in the practical elimination of filling or pumping losses, as excessive vapors are held in and filling loss reduced to a minimum.

The principle on which the expansion roof operates is simple. When vapors expand due to rising temperature, the pressure gently raises the roof. This enlarges the space sufficiently to hold the vapors in instead of expelling them. When the vapors contract, the roof lowers with them. This eliminates breathing, and the gasoline vapors are kept in and the air kept out.

A deep skirt is welded to the rounded surface of the roof and travels up and down in a trough containing oil, which forms a seal. This is protected from rain or snow all around by a weather hood.

Although there is little condensation formed in the vapor lines, they are engineered to drain to one end where any condensate may be easily removed. The tanks are fitted with eye-level ground reading automatic gauges. Temperatures and samples may be readily secured at different levels.

The company making the installation of this equipment, Graver Tank & Mfg. Co. Inc., estimates that the saving of gasoline at the plant will be 63,000 gals. Figuring gasoline at 9c per gal., including manufacturing and transportation cost, this would effect a saving of roughly $6000. This is without considering the loss of octane value which takes place when gasoline is lost through evaporation.

The portion of the gasoline lost through evaporation in storage not only is the most volatile fraction, which aids in easy starting, but it is

Trucks are loaded from this horizontal metering tank at the Home Oil Co.'s terminal at Henderson. This tank can receive material from all 6 storage tanks which have a total capacity of 1,400,000 gals. Loading lines run to the bottom of truck compartments to save evaporation from splashing. Trucks load through 2½ in. lines at the rate of 120 gals. a minute. Company has 3 transports, 15 delivery and 2 equipment maintenance trucks. Five of these trucks are less than a year old

One of the company's 6 bulk plants. Meters are used in some of the plants; are being considered in others

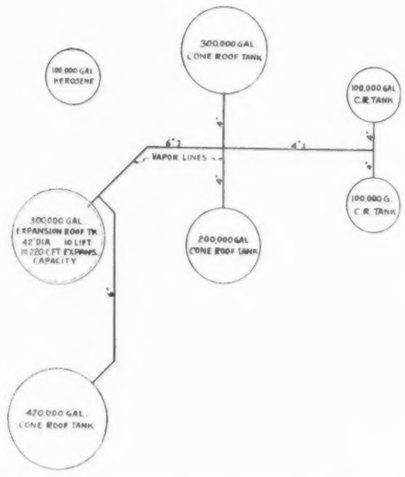
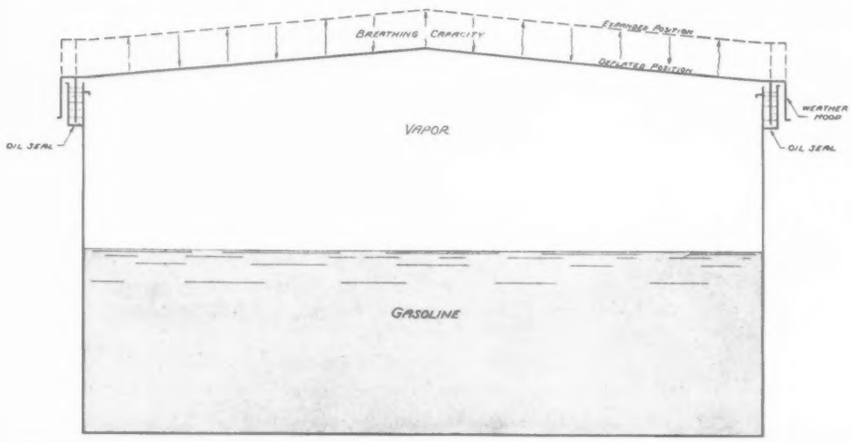
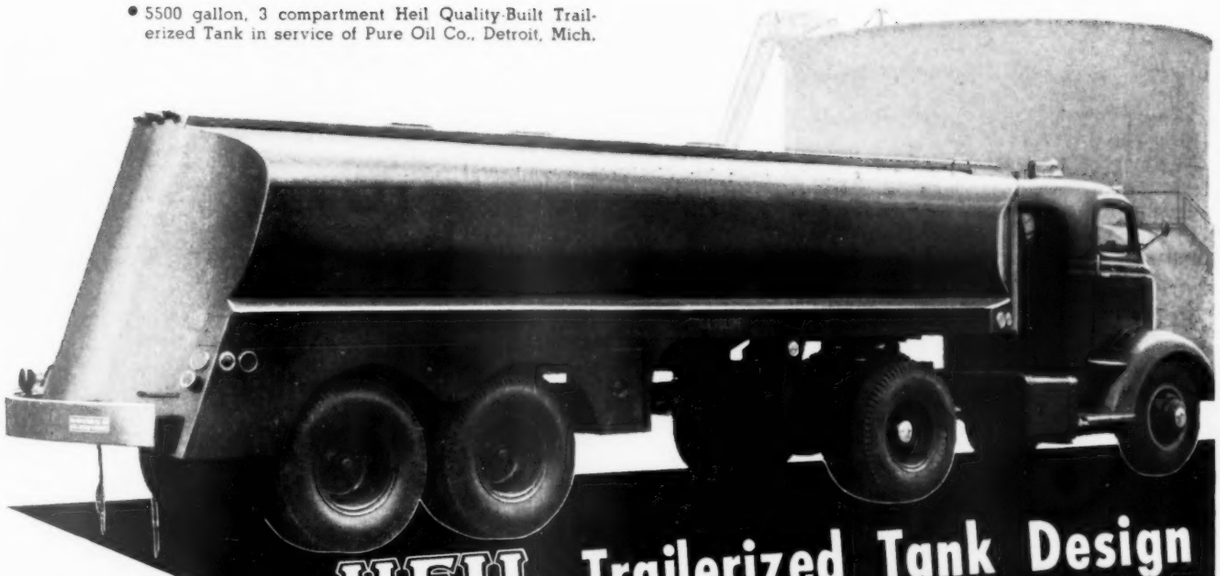

300,000 GAL. CONE ROOF TANK
100,000 GAL KEROSENE
100,000 GAL C.R. TANK
6"
4"
VAPOR LINES
300,000 GAL. EXPANSION ROOF TK. 42' DIA. 10 LIFT 14220 CFT EXPANS. CAPACITY
200,000 GAL CONE ROOF TANK
100,000 G. C.R. TANK
420,000 GAL. CONE ROOF TANK

Diagram showing how vapor spaces in other tanks are hooked up to the 300,000 gal. expansion roof tank. Complete balance of vapor space in the entire system has been worked out. Condensate formed in vapor lines is slight and is easily removed because lines all drain to one end



Cross section diagram of tank equipped with expansion roof. Internal stabilizing apparatus not shown. Roof is gently lifted when vapor in tank expands; lowers when vapors contract. An oil seal prevents escape of any vapors. A deep skirt protects oil seal from the weather

• 5500 gallon, 3 compartment Heil Quality-Built Trailerized Tank in service of Pure Oil Co., Detroit, Mich.



HEIL Trailerized Tank Design cuts down dead weight

without sacrificing structural strength or safety

. . . and reduction of weight means more gallons per load for you!

• 4000 gallon, 2 compartment Heil Quality-Built Trailerized Tank — part of a Heil fleet operated in New York City by Burns Bros. Coal Company.

• 5500 gallon, 9 compartment Heil Quality-Built Trailerized Tank for Petroleum Carriers, Inc. Newark, N. J.

Without deviating from conventional tank shapes, Heil Trailerized tank construction combines a *frameless* tank and running gear all in one. • By reducing dead-weight, Heil helps you realize *extra income every trip* — because pounds saved can be converted into *additional gallonage.* • Yet you enjoy *greater safety* through *greater strength.* Elimination of the trailer frame provides unusually low mounting, lower center of gravity, and increased road stability. • Forty years of experience enables Heil's capable engineers and skilled craftsmen to design and build beautiful, well-balanced tanks that deliver the dependable, money-making performance you expect. And that's a sound reason why *the less you have to spend, the more important it is to* buy Heil Quality Tanks. • Get Heil recommendations on your next tank order.

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The Petroleum Industry from a practical, economic and financial standpoint.

By DAVID D. LEVEN

A comprehensve reference volume touching on the important phases of the Oil Industry's work and economics. Covers History, Sciences, Drilling, Production, Refining, Transportation, Marketing, Finance Investments, Securities, Oil Royalty Business, Regulation of Investments and Securities Markets, Taxing Oil, etc. For anyone interested in an up-to-date and overall picture of the Oil Industry—"Done in Oil" is essential equipment. Over 1000 pages, including colored maps, photographs, illustrations, charts and tables. $10.00 PER COPY

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also the fraction highest in octane value, various authorities have determined. One agency states that a volumetric loss of 1% through evaporation will bring about a loss in octane rating of approximately one point. Another company measured the distribution of anti-knock value through the distillation range by separating the fuel into 10 cuts by distillation and determining the octane number for each cut. It found the most volatile fractions have the highest anti-knock value and the heavier cuts have progressively lower octane numbers. A typical commercial gasoline showed a loss of about 6 points, after the first 10% had been distilled off. In experiments by another company, the loss of 4% of a sample of motor fuel by evaporation caused a drop from 69 to nearly 66 in octane value of the fuel.

The barge terminal plant of the Home Oil Co. is enclosed with wire fencing. It is completely flood-lighted; has concrete driveways, and is equipped with every labor saving, as well as product conserving, device that the company management has found practical. Exclusive of the ground, some $50,000 is invested in the plant, of which $4500 is in vapor saving devices, meters and lines.

The plant is the base of operations for this independent company, which operates 6 bulk plants, serving some 200 dealer outlets and farm accounts, and 20 service stations in 12 northwestern Kentucky counties. The plant also supplies gasoline and kerosine to 8 smaller independent jobbers. These jobbers send their trucks to the plant for loading.

The fact that the company really means business in its "all out" campaign to stop losses is found throughout the entire operations of the company. Five trucks less than a year old are in the organization's fleet of 3 transports, 15 delivery trucks and 2 equipment maintenance trucks. Around $40,000 worth of tank and pump equipment, all modern, is distributed over the company's marketing territory. More is being installed whenever the management determines that it is a good investment to put it in. With the

G. D. Given, president and general manager of the Home Oil Co. and the Home Oil Terminal Co., acts as co-ordinator of the business and leaves details up to his two sons, G. D. Jr. and Robert

exception of one year, 1932, the company has made money since its start in 1925 on a commission agency business for a company that has long been out of business.

The management of the company is in the hands of G. D. Given, who acts as "co-ordinator" at this time, leaving most of the details to his sons, G. D. Jr., vice president in charge of sales, and Robert, secretary and treasurer. No regular station or bulk plant supervisor is employed. One regular salesman covers the territory. He and the Givens brothers frequently contact the stations, and pass on merchandising ideas, check on housekeeping conditions and handle other supervisory duties. One of the Givens family makes it a point to see each outlet at least once a week.

The sales department of the company is really the bulk plant agents. The plants are within a radius of 85 miles of Henderson. Two of them, Henderson and Owensboro, are com-

One of the 20 service stations which the Home Oil Co. operates. In addition, company has some 200 dealer outlets and farm accounts. Wheel balancing is featured in connection with its tire business

pany operated. The others are on a commission. The agents are selected with great care, and no bulk plant territory is too large to permit thorough and complete coverage of every dealer and farm account.

Handling Farm Business

The farmers are sold on regular 30-day terms. If at the end of 60 days an account has not been paid, a note at regular bank interest is secured. These notes usually run to the approximate time the farmer will be able to sell his crops, or perhaps when he will have some hogs or cattle to dispose of. The Home Oil Co. discounts the notes at the bank.

It has been the practice to have the bank notify the customer that payment, rather than renewal, is expected when the note is due. They found that some farmers would pay the interest and renew the notes indefinitely if permitted to do so. In unusual circumstances, the notes are renewed. Credit losses of the Home Oil Co. run less than ½ of 1%.

Farm accounts are sold on a "keep-full" basis. Storage tanks of sufficient size to meet requirements are loaned customers. Thus larger than usual tanks will be found at customer locations. But the additional investment is offset by reason of being able to route the trucks and make a dump at every location. This eliminates expensive in-between trips to customers.

Further evidence of this company's "all out" campaign against losses is found throughout their entire operations. This extends from their fluorescently lighted modern offices in downtown Henderson to their metered bulk plants, fully equipped modern stations and other facilities marketers find necessary today in order to stay in the black.

And, to top it all off, "Colonel" Given has a nice air-conditioned apartment over his offices where he can direct his defense program against losses.

Annual Fire Prevention Week To Be Observed Oct. 5-11

CLEVELAND, Aug. 19. — Annual observance of fire prevention week is scheduled for Oct. 5-11, according to report of the National Fire Protection Assn. The increase in industrial activity due to defense projects makes the job of preventing fire loss more difficult, report states. It is now necessary to consider war incendiarism, sabotage and incendiary bombs.

Start Gas Pipeline

CLEVELAND, Aug. 16. — Construction of a 200-mile natural gas pipeline has been started by United Gas Pipe Line Co., company announced this week. Line will run from southern Louisiana gas fields to Mandeville, La., east to Gulfport, Miss., and Mobile, Ala., where it will connect with an existing lateral line which goes to Pensacola, Fla.

Over half of the new line's capacity will be used by industries engaged in defense work, company estimates.

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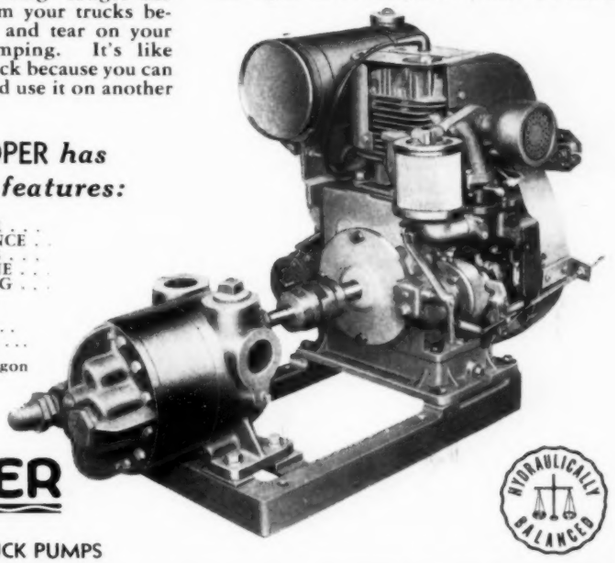
Hop on the bandwagon for greater profits. Write us today.



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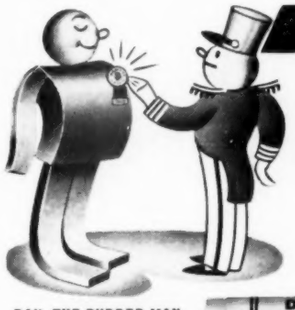
McLaughlin Gormley King is the originator of standardized pyrethrum concentrates and willingly gives its advice and assistance to manufacturers of insect sprays. If we can be of assistance, do not hesitate to ask for information on formulas, markets, packaging, or any other information pertinent to these products. We will be glad to help.

McLaughlin Gormley King Co., Dept. NPN, Minneapolis, Minn.



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DOOR-EASE STAINLESS STICK LUBRICANT
for door dovetails, striker plates, rubber bumpers and seals, hood lacings, and other exposed friction surfaces.

AMERICAN GREASE STICK CO.
MUSKEGON, MICH.

Merchandising

(*Continued from Page 36*)

this convinced Mr. Farrall that many people just *thought* it took a long time to change oil; that 20 seconds to an average motorists seems like a minute. So he had signs made for his stations reading:

"Your Oil Changed In 8 Minutes"

Almost overnight the number of crankcase drains doubled.

Another problem for the operators was tourists driving across the nearby borders to West Virginia and Pennsylvania hoping to find cheaper gasoline. Result: another sign reading:

"Last Chance to Fill Up At Ohio Prices"

The fact that gasoline might be less across the line didn't keep many new customers from stopping. And when they did, they were put through a routine that made them come back.

First they were invited to take a look at "the cleanest rest room in 17 counties". And they really found clean ones, too. Part of the equipment was a sign reading:

"If You Like Our Restrooms You'll Like Our Products"

Another piece of equipment in the restroom is a paper towel rack. An ordinary customer would see no particular difference in this rack and any other. But there is. It is fastened very high on the wall. So high, in fact, that when a customer reaches for a towel he has to grab it in a hurry so that water doesn't run down his sleeve. But that reduced paper towel consumption about 50%. For Mr. Farrall found that where the towels are too convenient, people as a matter of habit pull out 3 or 4 towels, when they really only need one.

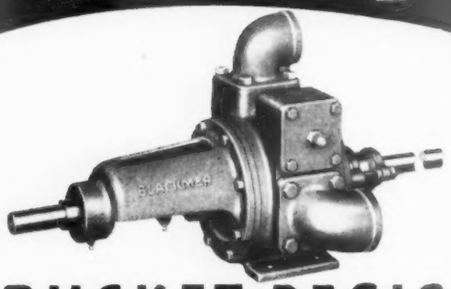
When the customer returns from his restroom inspection, he finds that his windshield has been thoroughly cleaned —except one little spot. That calls his attention to the service, and as the operator wipes the remaining spot, it gives him an opportunity to get in a few good will words.

Tax Officials Protest Higher Federal Levy

Protests against increase in federal gasoline tax have been filed with Congress by tax officials of 30 states, American Petroleum Institute reports.

In resolutions to Congress, officials pointed out that state levies on motor fuel now supply approximately one-quarter of the total tax revenue of the states and that if the federal government invades further the field of gasoline taxation, the finances of many states might be placed in jeopardy.

AS SURE AS 2+2=4



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TRADEMARKS

The following are trademark applications pertinent to our field pending in the United States Patent Office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Munsey Building, Washington, D. C., trademark specialists.

DI-NITROL, Ser. No. 443,375, The Sherwin-Williams Company, Cleveland, Ohio. Filed: May 8, 1941. For insecticides and fungicides. Published: July 29, 1941.

ZINGO, Ser. No. 443,678, American Drug & Chemical Company, Minneapolis, Minn. Filed: May 19, 1941. For insect repelling preparation. Published: July 29, 1941.

GERO on representation of an insect, Ser. No. 443,758, Gero Products, Inc. South Boston, Mass. Filed: May 21, 1941. For insecticide crystals and pellets. Published: July 29, 1941.

CALTEX on representation of Star within a circle, Ser. No. 438,033, California Texas Oil Company, Limited, New York, N. Y. Filed: Nov. 19, 1940. For dry cleaning fluids and stoddard solvent—namely, a dry cleaning solvent. Published: July 29, 1941.

BERRY, Ser. No. 436,754, Berry Asphalt Company, Chicago, Illinois. Filed: October 9, 1940. For black, rail, automotive, cable, diesel, engine, transmission, rope and twine, and other lubricating oils; special naphthas, tractor, diesel, domestic burner, industrial, kerosine, and other fuel oils; flux, dust laying, and other oils for dressing roads and streets; metal drawing, cutting tool cooling and lubricating, and coal dust laying oils; pipe rust proofing, paper impregnant and water proofing; battery sealing, and heat, cold and electrical insulation asphaltic oils. Published: Aug. 5, 1941.

APCO, Ser. No. 441,936, Anderson-Prichard Oil Corporation, Oklahoma City, Oklahoma. Filed: Mar. 26, 1941. For gasoline, kerosine and industrial naphthas. Published Aug. 5, 1941.

TIONA, Ser. No. 444,808, Tiona Petroleum Company, Philadelphia, Pa. Filed: June 24, 1941. Under 10-year proviso. For lubricating oils and greases. Published: August 5, 1941.

SOLVO, Ser. No. 443,264, Petrolite Corporation, Ltd., St. Louis, Mo. Filed: May 5, 1941. For chemical agent for inhibiting, preventing, and removing deposits of asphalt, wax, paraffin, organic materials, and the like in oil wells, oil collecting lines, tanks, and similar petroleum handling equipment. Published: August 12, 1941.

A-200 ECTOPARASITICIDE, Ser. No. 443,831, Walter K. Angevine, Washington, D. C. Filed: May 23, 1941. (ECTOPARASITICIDE disclaimed) For insecticide specially processed to allay irritation in the treatment of pediculosis, scabies and for the eradication of animal parasites, and their eggs, infesting the body; and for external use on both humans and domestic animals. Pub. Aug. 12, 1941.

B-GON, Ser. No. 442,408, California Spray-Chemical Corporation, Wilmington, Delaware and Richmond, California. Filed: April 9, 1941. For parasiticides, insecticides, animal poisons, and animal repellents. Published: August 12, 1941.

FRIEND PENN and picture of clasped hands (PENN disclaimed), Ser. No. 443,451, Billups Petroleum Company, Greenwood, Jackson, Clarksdale, Indianola, Belzoni, Columbus, Columbia, Gulfport, Itta Bena, Natchez, and Durant, Miss.; Lake Charles, New Iberia, New Orleans, Jennings, Opellousas, Eunice, Franklin, Alexandria, Amite, and Hammond, La., and Memphis, Tenn. Filed: May 10, 1941. For fuel oil, gasoline oil, illuminating oil, lubricating oil, gasoline, and gear grease. Published: August 12, 1941.

SERV-A-PLANE—BOWSER and picture of wings, Ser. No. 439,799, S. F. Bowser & Company, Incorporated, Fort Wayne, Ind. Filed: Jan. 21, 1941. For measuring and dispensing apparatus for gasolines or other liquids. Published: August 12, 1941.

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—*you make the choice*

Ever know a top executive who didn't get around? Well that's your cue now. You have never needed a fresh outlook more—with the comfortable old world falling about your ears. What are you going to do about it?

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● It is easy for United States citizens to come and go across the border—no special forms or red tape required.

● The Royal York Hotel is the largest in the British Empire—all sessions, exhibits and panels on the one convention floor.

● Canadian industry has had to face for two years the conditions now confronting us. This experience can help to steer you straight.

● Some Subjects on the Program: Industrial Advertising in a Wartime Economy — Institutional Advertising — Information Plus—Industry Looks Ahead — Advertising Analysis—Putting Sales Tools to Work—and many others.

Make this note in your diary

19th ANNUAL N. I. A. A. CONFERENCE

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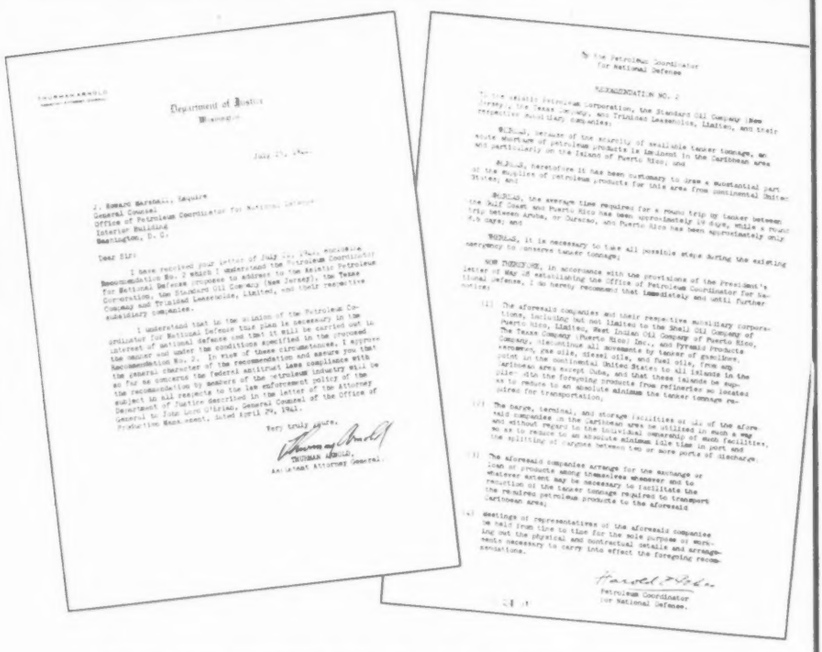

Department of Justice
Washington

July 25, 1941

Recommendation No. 2 which I understand the Petroleum Coordinator for National Defense proposes to address to the Texas Corporation, the Standard Oil Company (New Jersey), the Texas Company, and Trinidad Leaseholds, Limited, and their respective subsidiary companies.

I understand that in the opinion of the Petroleum Coordinator for National Defense and that it will be carried out in the interest of national defense and that in view of these circumstances, I approve the manner and under the conditions submitted to the proposed Recommendation No. 2. In view of the recommendation and assure you that the general character of the Federal antitrust laws compliance with as far as consistent the Federal antitrust policy of the the recommendation by members of the petroleum industry will be subject to all respects to the law enforcement policy of the Department of Justice described in the letter of the Attorney General to John Lord O'Brian, General Counsel of the Office of Production Management, dated April 29, 1941.

Very truly yours,

THURMAN ARNOLD,
Assistant Attorney General.

To the Petroleum Coordinator
for National Defense

RECOMMENDATION NO. 2

To the Petroleum Corporation, the Standard Oil Company (New Jersey), the Texas Company, and Trinidad Leaseholds, Limited, and their respective subsidiary companies:

WHEREAS, because of the scarcity of available tanker tonnages, an acute shortage of petroleum products is imminent in the Caribbean area and particularly on the Islands of Puerto Rico; and

WHEREAS, heretofore it has been customary to draw a substantial part of the supplies of petroleum products for this area from continental United States; and

WHEREAS, the average time required for a round trip by tanker between the Gulf Coast and Puerto Rico has been approximately 19 days, while a round trip between Aruba, or Curacao, and Puerto Rico has been approximately one-fifth days; and

WHEREAS, it is necessary to take all possible steps during the existing emergency to conserve tanker tonnage;

NOW THEREFORE, in accordance with the provisions of the President's letter of May 16 establishing the Office of Petroleum Coordinator for National Defense, I do hereby recommend that immediately and until further notice:

(1) The aforesaids companies and their respective subsidiary corporations, including but not limited to the Shell Oil Company of Puerto Rico, Limited, West Indian Oil Company of Puerto Rico, The Texas Company (Puerto Rico) Inc., and Pyramid Products Company, discontinue all movements by tanker of gasoline, kerosene, fuel oils, diesel oils, and fuel oils; from any Caribbean area except Cuba, and that these Islands be supplied with the foregoing products from refineries so located as to reduce to an absolute minimum the tanker tonnages required for transportation.

(2) The barge, terminal, and storage facilities or all of the aforesaid companies in the Caribbean area be utilized in such a way and without regard to the individual ownership of such facilities, as to reduce to an absolute minimum idle time in port and the splitting of cargoes between two or more ports of discharge.

(3) The aforesaids companies arrange for the exchange or loan of products among themselves whenever and to whatever extent may be necessary to facilitate the reduction of the tanker tonnage required to transport the required petroleum products to the aforesaid Caribbean area;

(4) meetings of representatives of the aforesaids companies be held from time to time for the sole purpose of working out the physical and contractual details and arrangements necessary to carry into effect the foregoing recommendations.

Harold L. Ickes
Petroleum Coordinator
for National Defense.

Puerto Rico Recommendation No. 2 and "green light" letter from Arnold—two of the many important official documents printed verbatim in OILGRAM'S Oil Law Reports, Aug. 13, 1941.

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MARKETS

Mid-Continent

TULSA, Aug. 16.—Heavy demand for gasoline continued in the Mid-Continent the past week. Supplies were "tight," for most part limited to regular customers and three refiners were prorating shipments to regular customers.

Oklahoma refiner sold 1 car 72-74 oct. gasoline at 6c; refiners, quotations ranged from 6 to 6.375c. Another bought 5 cars 72-74 to meet commitments at undisclosed price. Still another sold 50 cars 72-74 and 25 cars 60 oct. & below inter-refinery at undisclosed prices, shipment balance of August. Texas refiner paid 6.25c for equivalent of 10 tank cars 72-74, truck shipment, to meet commitments. North Texas refiners quoted 6 to 6.5c and two West Texas refiners, 6 to 6.125c.

Lube demand continued heavy, supplies "tight." Most refiners said price increases were justified, but were "held back" pending clarification OPACS' policy regarding price "ceilings."

Sales of 2 cars Grade 26-70 natural gasoline were reported at 3.75c, FOB Group 3, 0.125c higher than last reported sales price. No open spot sales were reported FOB Breckenridge; quotations late in the week ranged 3.375 to 3.5c, up 0.125c on low. Material for Corpus Christi destination was "very tight," two sellers said. Several sellers said they were "sold up" for balance of August.

Gulf

NEW YORK, Aug. 16.—Gasoline sales and "the first inquiries we've had in some time" for a variety of products were reported by Gulf refiners the past week.

One refiner reported a total of five 80,000-bbl. cargoes of 68 oct. unleaded gasoline sold at 6.375c for August-September lifting, last cargo of which was closed Aug. 12 for Sept. 15 lifting. Sales were domestic but refiner expressed belief that the material would be resold to the British under lease-lend terms. Quotations reported by refiners for 68 oct. ranged from 6 to 6.375c.

Inquiries were reported for four 80,000-bbl. cargoes of No. 2 fuel for lifting, one a month, over the next four months, coastwise. Refiners' quotations ranged from 3.5 to 3.875c.

Inquiries for three 80,000-bbl. cargoes of kerosine for lifting one a month beginning in September also were reported. Offerings of kerosine at 3.5c were reported in the market with refiners' quotations ranging up to 4c.

Two refiners reported inquiry for 80,000 bbls. of min. 80 oct. (research) gasoline for September, coastwise, one saying he couldn't quote for "lack of material," the other quoting 6.5c contingent upon getting an "adequate supply of natural gasoline and OPACS' approval." Quotations of other refiners ranged upward from 6.25c.

Export inquiries for motor fuels for August-September lifting were reported by several refiners. Products included min. 80 oct. (research), 73 oct. (ASTM) "aviation gasoline," min. 67 oct. (United Kingdom motor spirits Specifications) 65 oct. unleaded, and "white spirits," said to be the same as vaporizing oil.

Pennsylvania

CLEVELAND—Quotations reported by western Penna. refiners for most refined products were unchanged the second week in August despite a 23 to 25c advance in crude prices late in the week. Light fuels were up 0.125 to 0.25c in the lower field, and wax was up 0.25c. Refiners generally appeared to be of the opinion that the light products probably would have to pay for the increase in crude costs in view of OPACS' top-price stand on neutrals. All products were offered sparingly.

Sales of 36-40 fuel oil were reported from lower field at 6c with refiners quotations ranging from 5.875 to 6.25c. Three resale agents were said to be in market for wax late in the week, bidding 5.25c, New York, for white crude scale. Refiners quotations ranged from 5.25 to 5.5c, New York.

Bright stock sold at 28c, "inter-refinery and to jobbers." At the end of the week, 4 refiners quoted 25c, one 26c, and two 27c, for 25 p.t. stock.

Mid-Western

CHICAGO, Aug. 16.—Shortage of gasoline is becoming acute, according to reports of refiners and tank car marketers in Chicago the past week. Demand for all grades gasoline continued heavy. Kerosine was reported "picking up." Quotations were unchanged.

Open spot sales by 4 marketers during the week were: 18 cars 80-82 oct. Ethyl gasoline, 14 cars at 6.375c, and 4 cars at 6.5c; 21 cars 72-74 oct. at 5.875c; 7 cars 60 oct. & below, 4 cars at 5.125c, and 3 cars at 5.25c, FOB Group 3.

One refiner quoted 7.4c for 80-82 oct., and refiners quotations ranged from 6 to 6.375c for 72-74 oct., 5.2 to 5.625c for 60 oct. & below, FOB Group 3. Group 3 quotations reported by marketers ranged from 6.125 to 6.50c, 5.75 to 6c, and 5.125 to 5.25c, for the 3 products, respectively.

Marketers also reported open spot sales of 5 cars Bunker "c" fuel oil at 4.47c, delivered Chicago.

California

LOS ANGELES, Aug. 16.—Cessation of shipment of all petroleum products to Japan and resumption of shipments to Russia, featured Pacific Coast petroleum markets the past week. Three Japanese tankers were said to have left California ports without the oil for which they came and offshore shipments dropped to a new low. No official statement could be obtained as to price paid by Amtorg for the 95,000 bbls. of aviation gasoline shipped from Los Angeles harbor, Aug. 15.

California suppliers made slight advances the past week in their gasoline quotations. Cargo prices ranged from 6 to 6.375c for 375 e.p., 70 octane; 6 to 6.25c for 390 e.p., 68 octane; and 5.5 to 5.875c for 400 e.p., 65 octane.

Seasonal decline in demand was responsible for easing of all burning oils at independent refineries in the Los Angeles Basin. Cracked fuel oil ranged from $0.60 to $0.75 per bbl., and straight run fuel oil from $0.72 to $0.80 per bbl.

Atlantic Coast

NEW YORK, Aug. 16.—Kerosine and light fuel oils were priced higher at northern seaboard points the week ended Aug. 16, with advances in the same oils at southern points also reported by some suppliers.

Kerosine was up 0.1c at New York to 5.3c tank cars and 5.2c barges, at Portland and Albany to 5.5c, and at Boston and Providence to 5.4c. At Charleston, kerosine was 0.05c higher at 5.3c.

Low quotations for Nos. 2 and 3 fuel oils were up 0.3c at New York to 5.2c tank cars and 5.1c barges, at Portland and Albany to 5.3c, and at Boston and Providence to 5.2c. No. 2 fuel at Wilmington was 0.2c higher at 5.2c.

Some suppliers reported advancing their postings 0.15c to 5.4c for kerosine and 0.2c to 5.2c for Nos. 2 and 3 fuels at Baltimore, Norfolk, Wilmington, and Charleston.

Advances of 15c to $2.15 per bbl. in their quotations for marine diesel oil were reported by some suppliers at New York, Philadelphia, Baltimore, and Charleston; lows of price ranges were unchanged at $2.00.

Suppliers of 72-74 oct. gasoline at Philadelphia, Baltimore, and Norfolk reported posting 7.5c but said that sales were limited to regular accounts only and that no new accounts were being considered. Quotations of other suppliers for 72-74 oct. at these points were at 8c.

REFINERY and SEABOARD PRICES

In bulk lots by Motor Transport, Tank Car, Barge or Tanker as shown

(NOTE—Parenthetical figures after prices indicate number of companies quoting when less than three companies are quoting.)

HOW PRICES ARE REPORTED—

Refinery and Seaboard prices in National Petroleum News are gathered by PLATT'S OILGRAM and are as published in the Monday issue of the OILGRAM.

PLATT'S OILGRAM is a reporting service issued in three identical editions daily from News Bureaus at New York, Cleveland, and Tulsa, Okla. PLATT'S OILGRAM gathers and publishes what its publisher and representatives believe to be accurate news of sales, prices and current happenings affecting the oil industry and that will be of interest to its subscribers. As this information is usually private, OILGRAM reports it according to what it is able to obtain from sources deemed reliable.

All information is supplied without guarantee as to its completeness, accuracy time of transmission or promptness of delivery.

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Publisher reserves the right to change the extent, nature and form of showing this information at any time.

Prices shown in the tables are quotations (meaning sellers' general offers or posted prices), or actual sales prices, reported to OILGRAM by refiners for "open spot" transactions, except as otherwise specified.

Prices arrived at by discounts off a specified price or "market date of shipment," prices named in contracts or prices arrived at in accordance with any arrangement made prior to date of sale, are not for "open spot" transactions and therefore are not considered in making the price tables. Prices made to brokers and prices in "Inter-refinery" transactions are also not considered except as may be noted.

All prices are for "immediate" shipment except in Gulf Coast bulk transactions where shipment is generally to be made in ninety days. Prices are FOB refineries, pipelines, or tanker terminals in districts designated.

Prices shown are for quantities in bulk such as tank car lots, motor transport lots or barge lots; and in cents per gallon; heavy fuel oils are in dollars per barrel of 42 U.S. gallons; wax and petrolatums are in cents per pound. Prices applying to barges or cargoes only are so designated.

Prices do not include taxes or inspection fees. Prices are published at the close of the business day.

Mid-Western prices in the tables were gathered from refiners with offices located in Chicago and the surrounding territory. While the prices are quoted on a Group 3 (Oklahoma) freight basis, this is in accordance with the custom of the oil industry which uses Group 3 as a price basis for the ease of comparing prices even when the material originates in another refining district. Other refinery prices are given by and for the particular refining district where the material is made and from which it is shipped.

When prices obtained by OILGRAM do not conform to these conditions the exception and the new conditions are noted in the news lead or in conjunction with the price table by footnote or otherwise, for the particular refinery or sales district involved.

Crude oil and products covered by OILGRAM'S news and price service, except where noted, have been represented to the publisher as fully up to the customary trade specifications indicated and according to the generally accepted methods of test: and all crude oil and all products thereof as having been lawfully produced and transported.

Any apparent error should be reported to the nearest OILGRAM or National Petroleum News office at once as no correction will be made after the second issue of the OILGRAM or National Petroleum News following its publication.

NOTICE—Owing to great demand, refiners generally limit quotations to regular customers and refuse bids, though higher, from others. Refiners' prices and sales shown; bids reported in market leads.

Summary of Daily Gasoline Prices (Aug. 12 to Aug. 18)

U. S. Motor, (ASTM octane)	Monday Aug. 18	Friday Aug. 15	Thursday Aug. 14	Wednesday Aug. 13	Tuesday Aug. 12
80-82 octane Ethyl:					
Oklahoma	6.5 – 7.25	6.5 – 7.25	6.5 – 7.25	6.5 – 7.25	6.5 – 7.25
Mid-Western (Group 3 basis)	7.4 (1)	7.4 (1)	7.4 (1)	7.4 (1)	7.4 (1)
N. Tex. (For shpt. to Tex. & N. M. dest'ns.)	7 (2)	7 (2)	7 (2)	7 (2)	7 (2)
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	7.125 (1)	7.125 (1)	7.125 (1)	7.125 (1)	7.125 (1)
72-74 octane:					
Oklahoma	6 – 6.375	6 – 6.375	6 – 6.375	6 – 6.375	6 – 6.375
Mid-Western (Group 3 basis)	6 – 6.375	6 – 6.375	6 – 6.375	6 – 6.375	6 – 6.375
N. Tex. (For shpt. to Tex. & N. M. dest'ns.)	6 – 6.5	6 – 6.5	6 – 6.5	6 – 6.5	6 – 6.5
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	6 –6.125 (2)	6 –6.125 (2)	6 –6.125 (2)	6 –6.125 (2)	6 –6.125 (2)
63-66 octane:					
Oklahoma	5.625– 6	5.625– 6	5.625– 6	5.625– 6	5.625– 6
Mid-Western (Group 3 basis)	5.6 – 6	5.6 – 6	5.6 – 6	5.6 – 6	5.6 – 6
N. Tex. (For shpt. to Tex. & N. M. dest'ns.)	5.625– 6.125	5.625– 6.125	5.625– 6.125	5.625– 6.125	5.625–6.125
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	5.625–5.75 (2)	5.625–5.75 (2)	5.625–5.75 (2)	5.625–5.75 (2)	5.625–5.75 (2)
60 octane & below:					
Oklahoma	5.25 – 5.625	5.25 – 5.625	5.25 – 5.625	5.25 – 5.625	5.25 – 5.625
Mid-Western (Group 3 basis)	5.2 – 5.625	5.2 – 5.625	5.2 – 5.625	5.2 – 5.625	5.2 – 5.625
N. Tex. (For shpt. to Tex. & N. M. dest'ns.)	5.25 – 5.75	5.25 – 5.75	5.25 – 5.75	5.25 – 5.75	5.25 – 5.75
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	5.25–5.375 (2)	5.25–5.375 (2)	5.25–5.375 (2)	5.25–5.375 (2)	5.25–5.375 (2)
Motor Gasoline, 72-74 octane (ASTM)					
New York harbor	8 – 8.5	8 – 8.5	8 – 8.5	8 – 8.5	8 – 8.5
New York harbor, barges	7.75 – 8.5	7.75 – 8.5	7.75 – 8.5	7.75 – 8.5	7.75 – 8.5
Philadelphia district	8 – 8.25	7.5 – 8	7.5 – 8	7.5 – 8	8
Baltimore district	7.75–8.25 (2)	7.5 – 8 (2)	7.5 – 8 (2)	7.5 – 8 (2)	8 (1)
Motor Gasoline:					
Western Penna. Bradford-Warren:					
Min. 80 Oct. ('39 Research)	8 (2)	8 (2)	8 (2)	8 (2)	8 (2)
74-76 Oct. (ASTM)	7.75 (1)	7.75 (1)	7.75 (1)	7.75 (1)	7.75 (1)
74-76 Oct. (L-3)	7.5–7.75 (2)	7.5–7.75 (2)	7.5 –7.75 (2)	7.5 –7.75 (2)	7.5–7.75 (2)
Western Penna. Other Districts:					
Min. 80 Oct. ('39 Research)	8 (1)	8 (1)	8 (1)	8 (1)	8 (1)
74-76 Oct. (ASTM)	7.25 – 7.75	7.25 – 7.75	7.25 – 7.75	7.25 – 7.75	7.25 – 7.75
74-76 Oct. (L-3)	7.25–7.5 (2)	7.25–7.5 (2)	7.25–7.5 (2)	7.25–7.5 (2)	7.25–7.5 (2)

REFINERY PRICES

Gasoline—U. S. Motor (ASTM Octane) except where otherwise specified

Prices Effective	Aug. 18	Aug. 11
OKLAHOMA		
80-82 oct. Ethyl	6.5 – 7.25	6.5 – 7.25
72-74 oct.	6 – 6.375	6 – 6.375
63-66 oct.	5.625– 6	5.625– 6
60 oct. & below	5.25 – 5.625	5.25 – 5.625
60-62 400 e.p.	5.375 (1)	5.375 (1)
MID-WESTERN (Group 3 basis)		
80-82 oct. Ethyl	7.4 (1)	7.4 (1)
72-74 oct.	6 – 6.375	6 – 6.375
63-66 oct.	5.6 – 6	5.6 – 6
60 oct. & below	5.2 – 5.625	5.2 – 5.625
N. TEX. (For shpt. to Tex. & N. M. dest'ns.)		
80-82 oct. Ethyl	7 (2)	7 (2)
72-74 oct.	6 – 6.5	6 – 6.5
63-66 oct.	5.625– 6.125	5.625– 6.125
60 oct. & below	5.25 – 5.75	5.25 – 5.75
60-62, 400 e.p.	5.375-5.5 (1)	5.375-5.5 (1)
W. TEX. (For shpt. to Tex. & N. M. dest'ns.)		
80-82 oct. Ethyl	7.125 (1)	7.125 (1)
72-74 oct.	6 –6.125 (2)	6 –6.125 (2)
63-66 oct.	5.625-5.75 (2)	5.625-5.75 (2)
60 oct. & below	5.25-5.375 (2)	5.25-5.375 (2)
CENT. W. TEX. (Prices to truck transports)		
80 oct. & above	7.125 (2)	7.125 (2)
72-74 oct.	6.125 (2)	6.125 (2)
67-69 oct.	5.625 (2)	5.625 (2)
62 oct. & below	5.375 (2)	5.375 (2)
AMARILLO, TEX. (For shpt. to W. Okla. & Tex. differential territory.)		
60 oct. & below	5.25-5.5 (2)	5.25-5.5 (2)
60-62, 400 e.p.	5.375-5.625 (1)	5.375-5.625 (1)

Prices Effective	Aug. 18	Aug. 11
KANSAS (For Kansas destinations only)		
80-82 oct. Ethyl	7.5 (1)	7.5 (1)
72-74 oct.	6.3 – 6.375	6.3 – 6.375
63-66 oct.	5.9 – 6	5.9 – 6
60 oct. & below	5.5 – 5.625	5.5 – 5.625
ARK. (For shipment to Ark. & La.)		
72-74 oct.	6 (1)	6 (1)
70-72 oct.	5.875 (1)	5.875 (1)
60 oct. & below	5.5 (1)	5.5 (1)
WESTERN PENNA. (Motor gasoline.)		
Bradford-Warren:		
Min. 80 oct. ('39 research)	8 (2)	8 (2)
74-76 oct. (ASTM)	7.75 (1)	7.75 (1)
74-76 oct. (L-3)	7.5-7.75 (2)	7.5-7.75 (2)
Other districts:		
Min. 80 oct. ('39 research)	8 (1)	8 (1)
74-76 oct. (ASTM)	7.25 – 7.75	7.25 – 7.75
74-76 oct. (L-3)	7.25-7.5 (2)	7.25-7.5 (2)
CENTRAL MICHIGAN (FOB Central Mich. refinery group basis for shpt. within Mich.; shpts. may originate at plants outside Central group)		
U.S. Motor: (Oct. L-3):		
72-74 oct.	8.5	8.5
67-69 oct.	7.7 – 7.75	7.7 – 7.75
Str. run gasoline, excluding Detroit shpt.	6 – 6.25	6 – 6.25
OHIO (S. O. Ohio quotations for statewide delivery and subject to exceptions for local price disturbances)		
72-74 oct.	8.375	8.375
CALIFORNIA U.S. Motor:		
58-61 grav., 375-400 e.p., 65 oct. & above	7 – 7.25	7 – 7.25
54-58 grav., for outside state shipment	6 – 6.75	6 – 6.75
54-58 grav., for instate shipment	5 – 5.65	5.5 – 6.5

Kerosine, Gas & Fuel Oils

Prices Effective	Aug. 18	Aug. 11
OKLAHOMA		
41-43 grav. w.w.	4.375– 4.75	4.375– 4.75
42-44 grav., w.w.	4.5 – 4.875	4.5 – 4.875
Range Oil	4 – 4.375	4 – 4.375
No. 1 P.W.	3.875– 4.25	3.875– 4.25
No. 1 straw	3.5-4.25 (2)	3.5-4.25 (2)
No. 2 straw	3.5 – 4.125	3.5 – 4.125
U.G.I. gas oil	No Price	3.5 (1)
No. 3 fuel	3.375– 3.625	3.375– 3.625
No. 6 fuel	$0.80-$0.85 (2)	$0.80-$0.85 (2)
14-16 fuel	$0.95 (2)	$0.95 (2)
MID-WESTERN (Group 3 basis)		
41-43 grav. w.w.	4.375– 4.75	4.375– 4.75
42-44 grav. w.w.	4.5 – 4.875	4.5 – 4.875
Range Oil	4 – 4.2 (2)	4 – 4.2 (2)
No. 1 p.w.	3.75 – 4.125	3.75 – 4.125
No. 2 straw	3.375– 3.6	3.375– 3.6
No. 3	3.25 – 3.5	3.25 – 3.5
No. 5	$0.85 (1)	$0.85 (1)
No. 6	$0.85-$0.875 (2)	$0.85-$0.875 (2)
N. TEX. (For shpt. to Tex. & N. M. dest'ns.)		
41-43 grav. w.w.	4 – 4.875	4 – 4.875
No. 1 P.W.	4.125 4.375(1)	4.125 4.375 (1)
AMARILLO, TEX. (For shpt. to W. Okla. & Tex. differential territory.)		
41-43 grav. w.w.	4.75 (2)	4.75 (2)
No. 1 straw	4.3 (1)	4.3 (1)
KANSAS (For Kansas destinations only)		
41-43 grav. w.w.	4.6 (1)	4.6 (1)
42-44 gravity w.w.	4.7 – 4.875	4.7 – 4.875
No. 1 p.w.	4.1 –4.3 (2)	4.1 – 4.3 (2)
No. 6 fuel	$0.85-$0.925 (2)	$0.85-$0.925 (2)

REFINERY PRICES (Continued)

(NOTE—Parenthetical figures after prices indicate number of companies quoting when less than three companies are quoting.)

NOTICE—Owing to great demand, refiners generally limit quotations to regular customers and refuse bids, though higher, from others. Refiners' prices and sales shown; bids reported in market leads.

Kerosine, Gas & Fuel Oil

(Continued)

Prices Effective	Aug. 18	Aug. 11
ARK. (For shipment to Ark. and La.)		
41-43 grav. w.w.	4.625 (1)	4.625 (1)
No. 1	4 (1)	4 (1)
No. 2	3.375 (1)	3.375 (1)
No. 3 fuel	3.375 (1)	3.375 (1)
Tractor fuel, for shpt. to Ark. points only	5.125 (1)	5.125 (1)
WESTERN PENNA.		
Bradford-Warren:		
45 grav. w.w.	6 – 6.25	6 – 6.25
46 grav. w.w.	6.25 (1)	6.125 (1)
No. 1 fuel	6.25 (1)	6.25 (1)
No. 2 "	6 – 6.25 (2)	5.875–6.25 (2)
No. 3 "	6.25 (1)	6.25 (1)
36-40 gravity	6.25 (1)	6.25 (1)
Other districts:		
45 grav. w.w.	6 – 6.5	6 – 6.125
46 grav. w.w.	6 – 6.625	6 – 6.25
47 grav. w.w.	6.125– 6.625	6.125– 6.375
No. 1 fuel	5.875– 6.25	5.75 – 6
No. 2 "	5.875– 6.25	5.75 – 6
No. 3 "	5.875– 6.25	5.75 – 6
36-40 grav., Pittsburgh dist. prices excluded	5.875– 6.25	5.75 – 6
CENTRAL MICHIGAN (FOB Central Mich. refinery group basis for shpt. within Mich.; shpts. may originate at plants outside Central group.)		
47-49 gravity w.w.	6 – 6.375	6 – 6.375
P.W. Distillate	5.5 – 6	5.5 – 6
No. 3 gas oil, Straw	5 – 5.8	5 – 5.8
U.G.I. gas oil	4.5 – 4.875	4.5 – 4.875
Fuel Oils (Vis. at 100).		
300-500 Vis.	4 – 4.25 (2)	4 – 4.25 (2)
100-300 Vis.	4.5 (1)	4.5 (1)
OHIO (S. O. Ohio quotations for statewide delivery)		
Kerosine	6.5	6.5
CALIFORNIA		
40-43 grav. w.w.	4.5 – 6	4.5 – 6
San Joaquin Valley:		
Heavy fuel	$0.70 –$0.85	$0.70 –$0.85
Light fuel	$0.75 –$0.85	$0.75 –$0.85
Diesel fuel	2.75 – 4	2.75 – 4
Stove dist.	2.75 – 4	2.75 – 4
Los Angeles:		
Heavy fuel	$0.60 –$0.75	$0.60 –$0.75
Light fuel	$0.72 –$0.80	$0.72 –$0.80
Diesel fuel	2.5 – 4	2.5 – 4
Stove dist.	2.5 – 4	2.5 – 4
San Francisco:		
Heavy fuel	$0.85	$0.85
Light fuel	$0.90	$0.90
Diesel fuel	4.5	4.5
Stove dist.	5.5	5.5

Note: All above heavy fuels meet Pacific specification 400; light fuel, spec. 300; Diesel fuels, spec. 200; and stove distillate, spec. 100.

Lubricating Oils

WESTERN PENNA.

Prices are for sales made, or offers reliably reported, to jobbers & compounders only.

Viscous Neutrals—No. 3 col. Vis. at 70°F

200 Vis. (180 at 100°) 420-425 fl.		
0 p.t.	40.5 (1)	40.5 (1)
10 p.t.	39.5 (1)	39.5 (1)
15 p.t.	38.5 (1)	38.5 (1)
25 p.t.	33-37	33-37
150 Vis. (143 at 100) 400-405 fl.		
0 p.t.	38.5 (1)	38.5 (1)
10 p.t.	37.5 (1)	37.5 (1)
15 p.t.	36.5 (1)	36.5 (1)
25 p.t.	31-35	31-35
Cylinder Stocks		
Brk. stk., 145-155 vis. at 210°, 540-550 fl., No. 8 col.		
10 p.t.	29.5 (1)	29.5 (1)
15 p.t.	28.5 (1)	28.5 (1)
25 p.t.	25-28	25-26
600 S.R. filterable	14-16	14-15
650 S.R.	14-16.5	13.5-15
600 fl.	14-17	14-15.5
630 fl.	15-17.5	15-16.5

MID-CONTINENT (F. o. b. Tulsa)

Neutral Oils (Vis. at 100° F. 0 to 10 P.P.)

Pale Oils: Vis.	Color		
60- 85	No. 2	7 – 7.5	7 – 7.5
86-110	No. 2	7.5 – 7.75	7.5 – 7.75
150	No. 3	12.5-12.75	12.5-12.75
180	No. 3	13	13
200	No. 3	13-13.5	13-13.5
250	No. 3	14-14.5	14-14.5
280	No. 3	15-16.25	15-16.25
300	No. 3	16-16.75	16-16.75

Lubricating Oils (Cont'd)

Prices Effective	Aug. 18	Aug. 11
Red Oils:		
180—No. 5	13 (1)	13 (1)
200—No. 5	13-13.5 (2)	13-13.5 (2)
280—No. 5	15.5 (1)	15.5 (1)
300—No. 5	15.5-16.5	15.5-16.5

Note: Viscous Neutrals, 15-25 p.p. generally are quoted 0.5c under 0-10 p.p. oils. Non-viscous oils, 15-25 p.p., generally are quoted 0.25c under 0-10 p.p. oils.

Bright Stock—Vis. at 210°		
200 Vis. D	25 (1)	25 (1)
150-160 Vis. D:		
0 to 10 p.p.	21-22	21-22
10 to 25 p.p.	20.5-21.5	20.5-21.5
25 to 40 p.p.	20 (1)	20 (1)
150-160 vis. E	20-20.5	20-20.5
120 Vis. D:		
0 to 10 p.p.	20-20.5	20-20.5
600 S.R. Dark Green	8.5 (2)	8.5 (2)
600 S.R. Olive Green	9.5-10	9.5-10
631 S.R.	17.5 (1)	17.5 (1)
Black Oil	4.5-5.5 (2)	4-5.5 (2)

SOUTH TEXAS Neutral Oils

Vis.	Color		
Pale Oils: (*Vis. at 100°F*			
100	No. 1½-2½	6.5	6.5
200	No. 2-3	8.75	8.75
300	No. 2-3	9.25	9.25
500	No. 2½-3½	10	10
750	No. 3-4	10.25	10.25
1200	No. 3-4	10.375	10.375
2000	No. 4	10.5	10.5
Red Oils:			
100	No. 5-6	6.5 (2)	6.5 (2)
200	No. 5-6	8.75	8.75
300	No. 5-6	9.25	9.25
500	No. 5-6	10	10
750	No. 5-6	10.25	10.25
1200	No. 5-6	10.375	10.375
2000	No. 5-6	10.5-11.5	10.5-11.5

CHICAGO (From Mid-Continent p.l. crude.)

Neutral oils (Vis. at 100° F. 0 to 10 p.p.)

Pale Oils Vis.	Color		
60-85	No. 2	8.75 (1)	8.75 (1)
86-110	No. 2	9.25 (1)	9.25 (1)
150	No. 3	13.5 (1)	13.5 (1)
180	No. 3	14 (1)	14 (1)
200	No. 3	14 (1)	14 (1)
250	No. 3	15 (1)	15 (1)
Red Oils:			
180	No. 5	14 (1)	14 (1)
200	No. 5	14 (1)	14 (1)
250	No. 5	15 (1)	15 (1)
280	No. 5	16.5 (1)	16.5 (1)
300	No. 5	16.5 (1)	16.5 (1)

Note: Viscous oils, 15 to 30 p.p. are quoted 0.5c lower; 60-85 and 86-110 No. 2 non-viscous oils, 15 to 30 p.p., 0.25c lower.

Unfiltered Steam Refined: (Viscosity at 210°)		
140	11 (1)	11 (1)
160	12 (1)	12 (1)
200	13 (1)	13 (1)
Bright stocks, 160 vis. at 210 No. 8 color:		
0 to 10 p.p.	22 (1)	22 (1)
15 to 25 p.p.	21.5 (1)	21.5 (1)
30 to 40 p.p.	19.75 (1)	19.75 (1)
E filtered Cyl. Stock	15 (1)	15 (1)

Note: To obtain prices delivered in Chicago, add 0.25c per gal.

Natural Gasoline

(Group 3 & Breckenridge prices are to blenders on freight basis shown below. Shipments may originate in any Mid-Continent manufacturing district.)

FOB GROUP 3			
Grade 26-70	3.75 (Sales)	3.625-3.75 (Qtns)	
FOB BRECKENRIDGE			
Grade 26-70	3.5 (Qtns.)	3.25-3.5 (Qtns.)	
CALIFORNIA (FOB plants in Los Angeles basin)			
75-85, 350-375 e.p. for blending	4.75 – 5.25	4.75 – 5.25	

Naphtha and Solvent

Prices Effective	Aug. 18	Aug. 11
(FOB Group 3)		
Stoddard solvent	6.625	6.625
Cleaners' naphtha	7.125	7.125
V. M. & P. naphtha	7.125	7.125
Mineral spirits	6.125	6.125
Rubber solvent	7.125	7.125
Lacquer diluent	7.375– 8.125	7.375– 8.125
Benzol Diluent	7.875– 8.625	7.875– 8.625
WESTERN PENNA		
Untreated naphtha	6.5 – 7.25	6.5 – 6.75
Stoddard solvent	7 – 7.5	7
OHIO (S. O. Ohio quotations for statewide delivery):		
V.M.&P. naphtha, D.C. naphtha, Varnelene & Sohio solvent	10	10
Rubber solvent	9	9

Wax

White Crude Scale:

WESTERN PENNA. (Bbls. C.L., N. Y.)		
122-124 A.m.p.	5.25 – 5.5	5.5.25
124-126 A.m.p.	5.25 – 5.5	5-5.375
OKLAHOMA (Bbls. or burlap bags, C.L.)		
124-6 AMP.	5.25 (1)	5.25(1)
131-3 AMP.	5.375 (1)	5.375 (1)

CHICAGO (FOB Chicago district refinery of one refiner, in bags or slabs loose, carloads. Melting points are EMP (ASTM) methods: add 3° F. to convert into AMP.)

Fully refined:		
122-124 (bags only)	5.9	5.6
125-127	5.9	5.6
127-129	6.15	5.85
130-132	6.85	6.15
132-134	7.1	6.4
135-137	7.85	7.15

Petrolatums

WESTERN PENNA. (Bbls., carloads: tank cars, 0.5c per lb. less.)

Snow White	6.125– 7	6.125– 7
Lily White	5.375– 6	5.375– 6
Cream White	4.375– 5	4.375– 5
Light Amber	3.25 – 3.875	3.25 – 3.875
Amber	3.125– 3.5	3.125– 3.5
Red	3 – 3.25	3 – 3.25

Group 3 Freight Rates

To Division Headquarters Points of Standard Oil Co. of Indiana

	Gasoline Kerosine Cents per Cwt.	Gasoline Kerosine Cents per gal. 6.6 lbs.	Distillate-Gas Oil-Fuel Oil Cents per Cwt.	Distillate-Gas Oil-Fuel Oil Cents per gal. 7.4 lbs.
Chicago, Ill.	36	2.376	32	2.368
Decatur, Ill.	32	2.112	31	2.294
Joliet, Ill.	36	2.376	32	2.368
Peoria, Ill.	33	2.178	31	2.294
Quincy, Ill.	31	2.046	29	2.146
Indianapolis, Ind.	38	2.508	39	2.886
Evansville, Ind.	35	2.310	37	2.738
South Bend, Ind.	44	2.904	**42	**3.108
Detroit, Mich.	64	4.224	51	3.774
Grand Rapids, Mich.	55	3.630	**50	**3.700
Saginaw, Mich.	66	4.356	53	3.922
Green Bay, Wis.	41	2.706	41	3.034
Milwaukee, Wis.	39	2.574	34.5	2.553
LaCrosse, Wis.	37	2.442	37	2.738
Minneapolis-St. Paul	37	2.442	37	2.738
Duluth, Minn.	41	2.706	41.5	3.071
Mankato, Minn.	37	2.442	37	2.738
Des Moines, Ia.	29	1.914	29	2.146
Davenport, Ia.	33	2.178	31	2.294
Mason City, Ia.	34	2.244	33.5	2.479
St. Louis, Mo.	29	1.914	26.5	1.961
Kansas City, Mo.	22	1.452	22.5	1.665
St. Joseph, Mo.	25	1.650	22.5	1.665
Fargo, N. D.	51	3.366	50.5	3.737
Huron, S. D.	43	2.828	42.5	3.145
Wichita				
From Ponca City	7.5	*0.495	7.5	†0.555
From Tulsa	12.5	*0.825	12.5	†0.925
From Cushing	11	*0.726	11	†0.814

*This rate also includes distillate rate at 6.6 lbs. per gal.

**This rate applies only to residual fuel and gas oil.

†This rate is exclusive of distillate which is based on 6.6 lbs. per gal. from Ponca City, Tulsa and Cushing, Okla., to Wichita. Includes only gas oil and fuel oil.

NOTE: There is no Group 3 rate to Wichita, Kans.

SEABOARD PRICES EXPORT AND COASTWISE

(NOTE—Parenthetical figures after prices indicate number of companies quoting when less than three companies are quoting.)

NOTICE—Owing to great demand, refiners generally limit quotations to regular customers and refuse bids, though higher, from others. Refiners' prices and sales shown; bids reported in market leads.

Atlantic Coast

(Prices are of refiners, FOB their refineries & their tanker terminals, & of tanker terminal operators, FOB their terminals)—Prices Effective Aug. 18

MOTOR GASOLINE

District:	Min. 80 Oct. '39 Research (Max. 2 cc. Lead)	72-74 Oct. (ASTM)	68-70 Oct. (ASTM)
N. Y. Harb.	8.5 – 9	8 – 8.5	8 (1)
N. Y. Harb., barges	8.5	7.75 – 8.5	7.75 (1)
Albany	....	....	....
Philadelphia	8.1 – 8.8	....	....
Baltimore	8 – 8.7	8 – 8.25	8 – 8.2 (2)
Norfolk	7.75 – 8.5	7.75–8.25 (2)	....
Wilmington, N. C.	7.5 – 8.5	7.5 –8.25 (2)	7.25 –7.5 (2)
Charleston	7.5 – 8	7.5 (1)	7.25–7.5 (2)
Savannah	7.6 – 7.8	7.5 (1)	6.9 –7.1 (1)
Jacksonville	7.37 – 7.7	....	7.1 –7.3 (2)
Miami	7.37 – 7.7	7.5 (1)	7.1 –7.3 (2)
Tampa	7.37–7.7 (2)	....	7.1 –7.3 (1)
Pensacola	7.25 – 7.7	....	7.1 –7.3 (1)
Mobile	7 –7.2 (1)	....	6.6 –6.8 (1)
Portland	6.87 – 7.2	....	6.6 –6.8 (1)
Boston	8.3 – 9.4	8.6 (1)	....
Providence	8.2 – 9	8.5 (2)	8.5 (1)
	8.2 – 9.1	8.5 (1)	....

FUEL OILS

	KEROSINE and/or NO. 1 FUEL	No. 2	No. 3	No. 5	No. 6
N. Y. Harb.	5.3 – 5.75	5.2 – 5.5	5.2	$1.65 –$1.75	$1.35 –$1.50
N. Y. Harb., barges	5.2 – 5.75	5.1 – 5.5	5.1	....	....
Albany	5.5	5.3	5.3	$1.95 (1)	$1.55 (1)
Philadelphia	5.25 – 5.8	5 – 5.25	5 – 5.25	$1.57	$1.35
Baltimore	5.1 – 5.45	5.2 – 5.25	5.2 – 5.25	$1.57 (1)	$1.35
Norfolk	5.3 – 5.5	5.2 – 5.25	5.2 –5.25 (2)	....	$1.35 (2)
Wilmington, N. C.	5.25 – 5.5	5.2 – 5.25	....	....	....
Charleston	5.3 – 5.5	5.2 (2)	....	....	$1.30 (2)
Savannah	5.25 – 5.5	....	....	....	$1.30 (1)
Jacksonville	5 – 5.5	5 (1)	5 (1)	....	$1.30 (1)
Miami	5.25–5.5 (2)	....	....	....	....
Tampa	5.25 – 5.5	5 (1)	....	....	$1.25 (1)
Pensacola	4.8 – 5 (1)	....	....	....	....
Mobile	4.75 – 5	....	....	....	....
Portland	5.5	5.3	5.3 (2)	$1.95 (1)	$1.35 –$1.55
Boston	5.4	5.2	5.2 (2)	$1.65 (2)	$1.35
Providence	5.4	5.2	5.2	$1.60 –$1.65	$1.35

	Bunker C Fuel Ships' bunkers (Ex Lighterage)	Diesel Oil Ships' bunkers (Ex Lighterage)	Diesel Oil Shore Plants	Gas House Gas Oil 28-34 Gravity
N. Y. Harbor	$1.35 –$1.50	$2.00 –$2.15	5.2 –5.3 (2)	5.3 (2)
Albany	$1.55 (1)	$2.35 (1)	5.3 (2)	5.5 (1)
Philadelphia	$1.35	$2.00 –$2.15	....	....
Baltimore	$1.35	$2.00 –$2.15	5.2 (1)	5.2 (1)
Norfolk	$1.35	$2.00 –$2.15	5.2 (1)	5.2 (1)
Charleston	$1.30	$2.00–$2.15 (2)	5.2 (1)	5.2 (1)
Savannah	$1.30 (1)	$1.99 (1)	....	....
Jacksonville	$1.30 (2)	$1.99-$1.995 (2)	....	....
Tampa	$1.25 (2)	$1.99-$1.995 (2)	....	....
Portland	$1.35 –$1.55	$2.23 –$2.25	5.3 (1)	5.4 (1)
Boston	$1.35	$2.15 –$2.18	5.2 (2)	5.3 (2)
Providence	$1.35	$2.00 –$2.18	5.2 (1)	5.3 (1)

Wax

(Melting points are AMP, 3° higher than EMP. Export prices FAS c.l. Domestic prices FOB, in bags, c.l. Scale solid; fully refined slabs.)

Prices Effective Aug. 18

Crude Scale:	New Orleans Export	N. Y. Domestic	N. Y. Export
124-6 Yellow	5.25 (1)	....	5.25 (1)
122-4 White	....	5.25–5.5	5.25–5.5
124-6 White	5.25 (2)	5.15–5.5	5.25–5.5
Fully Refined:			
123-5	6.25 (1)	6.4 (1&a)	6.25 (1)
125-7	6.25 (1)	6.55 (1&a)	6.25 (2)
128-30	6.5 (1)	5.6–6.6 (2)	6.5 (2)
130-32	6.75 (1)	6.85 (1)	6.5–6.75 (2)
133-5	7 (1)	6.15–7.15 (2)	7 (2)
135-7	7.25 (1)	....	7–7.25 (2)
108-11 White Match wax (tight bbls.)			5.75 (1)

Naphtha

Prices Effective Aug. 18	V.M.&P. Naphtha	Mineral Spirits
Baltimore	10 (2)	9
New York Harbor	10 (2)	9–9.5
Philadelphia district	10.5 (2)	9.5
Boston	10.3–10.5 (2)	9.8 – 10
Providence	10.3 (1)	9.8 (2)

Pacific Export

(Quotations at seaboard, Los Angeles, cargo lots, except where otherwise noted.)

Prices Effective	Aug. 18	Aug. 11
375 e.p. blend, 70 oct.	6 – 6.375	6 – 6.375
390 e.p. blend, 68 oct.	6 – 6.25	5.875– 6.25
390 e.p. blend, 66 oct.	5.625– 5.75	5.625– 5.875
400 e.p. blend, 65 oct. min.	5.5 – 5.875	5.5 – 5.625
U. S. Motor, under 65 octane	5.25 – 5.625	5.25 – 5.5
38-40 grav. w.w. kero., 150 fire point	4.5 – 5	4.5 – 5
41-43 grav., w.w. kero.	4.75 – 5	4.75 – 5
44-grav., w.w. kero.	5 – 5.5	5 – 5.5
Diesel fuel, 24 & above	$1.25 –$1.30	$1.25 –$1.30
Diesel fuel, under 24	$1.15 –$1.25	$1.15 –$1.25
30-34 grav. diesel (gas oil) Pac. Spec. 200	$1.25 –$1.35	$1.25 –$1.35
Grade C fuel, Pac. Spec. 400	$0.85 –$0.90	$0.85 –$0.90
In Ship's Bunkers, or deep tank lots:		
Diesel fuel, Pac. Spec. 200	$1.35 –$1.45	$1.35 –$1.45
Grade C fuel, Pac. Spec. 400	$0.85 –$0.90	$0.85 –$0.90
Cased Goods: (Per case)		
375-400 e.p. blend, 65 oct. & above	$1.50 –$1.60	$1.50 –$1.60
400 e.p. blend, under 65 oct.	$1.40 –$1.50	$1.40 –$1.50
U. S. Motor	$1.35 –$1.45	$1.35 –$1.45
40-43 grav. w.w. kero., 150 fire point	$1.30 –$1.40	$1.30 –$1.40
Kero., p.w.	$1.25 –$1.35	$1.25 –$1.35

Tanker Rates

(Approximate last paid rates, cents per bbl.; Gulf-N. Atlantic, not East of N. Y.)

Hvy. Crude & Fuel (10 to 19.9 gravity)	57
Light Crude, (30 grav. or Lighter)	50
Gasoline	50
Kerosine	53
No. 2 Fuel	57

Gulf Coast

(Prices for sales made or firm offers reliably reported for sales pending in cargoes FOB ship at Gulf, for minimum of 20,000 bbls. Prices are by refiners only to other refiners, export agents, or to large tanker terminal operators at the customary trade specifications noted.)

Prices Effective Aug. 18

Motor Gasoline Domestic	
Min. 80 oct. '39 Research, max. 2cc lead	6.25 – 6.375
60-62, Gravity, Max. 400 e.p.	
72-74 oct. leaded (ASTM)	6 – 6.125
70 oct. unleaded " "	6 – 6.25
68 oct. " "	6 – 6.375
65 oct. " "	5.5 – 5.875
60 oct. " "	5.125– 5.625
41-43 w.w. kerosine	3.5 – 4
No. 2 fuel	3.5 – 3.875
Gas Oil—Less than ½ of 1% sulfur.	
Below 43 diesel index	3.5
43-47 " "	3.5
48-52 " "	3.625– 3.7
53-57 " "	3.75
58 & above diesel index	3.875
Diesel Oil, ships' bunkers (ex-lighterage)	$1.55
Bunker C, " "	$0.85 –$0.95
Bunker C, cargoes	$0.85 –$0.95
Motor Gasoline Export	
60-62 Gravity, Max. 400 e.p.	
72-74 oct. leaded (ASTM)	6 – 6.125
70 oct. unleaded "	6 – 6.25
68 oct. " "	6 – 6.375
65 oct. " "	5.5 – 5.875
60 oct. " "	5.125– 5.625
41-43 w.w. kerosine	3.5 – 4
Gas Oil—Less than ½ of 1% sulfur.	
Below 43 diesel index	3.5
43-47 " "	3.5
48-52 " "	3.625– 3.7
53-57 " "	3.75
58 & above diesel index	3.875

MID-CONTINENT LUBES

(At Gulf; in packages, FAS.; in bulk, FOB terminals)

Aug. 18

	New Steel Drums	Bulk
200 vis. D 210 brt. stock	31.5–33 (2)	26.3 (2)
150 vis. D 210 brt. stock 0-10 p.p.	27.5–29 (2)	22.3 (2)
10-25 p.p.	27 (1)	21.8 (1)
100 vis. D 210 brt. stock 0-10 p.p.	27 (1)	21.8 (1)
10-25 p.p.	26.5 (1)	21.3 (1)
200 vis. No. 3 col. neutral: 0-10 p.p.	20 (1)	14.8 (1)

SOUTH TEXAS LUBES

(Vis. at 100°, c. t. 0, blk. exprt. shp., FOB terminals)

Unfiltered Pale Oils: Vis. Color	Aug. 18	Aug. 11
100 No. 3	6.25–6.5 (2)	6.25–6.5 (2)
200 No. 3	7.75–8.75 (2)	7.75–8.75 (2)
300 No. 3	8.25–9.25 (2)	8.25–9.25 (2)
500 No. 3½	9.25–10.25 (2)	9.25–10.25 (2)
750 No. 4	9.75–11 (2)	9.75–11 (2)
1200 No. 4	10.25–11.5 (2)	10.25–11.5 (2)
2000 No. 4	12.5 (1)	12.5 (1)
Red Oils: Vis. Color		
100 No. 5-6	6.5 (1)	6.5 (1)
200 No. 5-6	7.75–8.75 (2)	7.75–8.75 (2)
300 No. 5-6	8.25–9.25 (2)	8.25–9.25 (2)
500 No. 5-6	9.25–10.25 (2)	9.25–10.25 (2)
750 No. 5-6	9.75–11 (2)	9.75–11 (2)
1200 No. 5-6	10.25–11.5 (2)	10.25–11.5 (2)
2000 No. 5-6	11–12.5 (2)	11–12.5 (2)

(a) 0.4c discount generally given for slabs loose.

TANK WAGON PRICES

Commercial or consumer tank car, tank wagon, dealer, and service station prices for gasoline **do not include taxes;** *they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include* 1.5c *federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices also do not include taxes; kerosine taxes where levied are indicated in footnotes. Dealer discounts are shown in footnotes. These prices in effect Aug.* 18, 1941 *as posted by principal marketing companies at their headquarters offices, but subject to later correction.*

S. O. New Jersey

Esso (*Regular Grade*)

	Consumer Tank Car	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
*Atlantic City, N. J.	8.5	9.5	4.5	7.8
*Newark, N. J.	8.5	9.5	4.5	7.8
Annapolis, Md.	8.35	9.85	5.5	9.5
Baltimore, Md.	7.75	9.25	5.5	8.5
Cumberland, Md.	9.15	10.65	5.5	10
Washington, D. C.	8	9.5	3.5	9
Danville, Va.	8.95	10.95	6.5	10.25
Norfolk, Va.	7.75	9.75	6.5	10
Petersburg, Va.	8.05	10.05	6.5	11
Richmond, Va.	8.05	10.05	6.5	11
Roanoke, Va.	9.25	11.25	6.5	10.5
Charleston, W. Va.	9.05	11.55	6.5	11.5
Parkersburg, W. Va.	8.35	10.85	6.5	11.2
Wheeling, W. Va.	9.35	10.85	6.5	11.8
Charlotte, N. C.	9.9	11.4	7.5	9.3
Hickory	10.45	11.95	7.5	10.3
Mt. Airy, N. C.	10.3	11.8	7.5	9.5
Raleigh, N. C.	9.65	11.15	7.5	10.3
Salisbury, N. C.	9.95	11.45	7.5	10.7
Charleston, S. C.	7.75	10.25	7.5	....
Columbia, S. C.	8.6	11.1	7.5	....
Spartanburg, S. C.	9.3	11.8	7.5	....

	Mineral Spirits T.W.	V.M.&P. T.W.
Newark, N. J.	12.5	14
Baltimore, Md.	15	....
Washington, D. C.	15	....

Fuel Oils—T.W.	No. 1	No. 2	No. 3
Atlantic City, N. J.	7.8	6.9	6.9
Newark	7.8	6.9	6.9
Annapolis, Md.	...	7.25	...
Baltimore	7.5	7	7
Washington, D. C.	8	7.25	7.25
Norfolk, Va.	7.75	6.75	6.75
Petersburg	8	7	....
Richmond	8	7	7
Charlotte, N. C.	8.3	8.4	....
Hickory	...	8	....
Raleigh	9.3	8.1	....
Charleston, S. C.	...	7	....
Columbia	...	8	....
Spartanburg	...	8.8	....

*Effective May 20, '41, minimum retail resale price of 13c posted thru New Jersey.

Discounts:

Esso gasoline—to undivided dealers, 0.5c off dealer t.w.

Kerosine—1c off t.w. price for 25 gals. or more, under contract thru territory (Baltimore city contract not necessary) except no discount in state of New Jersey.

Naphthas—To buyers taking following quantities at one time: Newark, 2c per gal. on 200 gals. or more, less than 200 gals. 0.5c higher price: Baltimore, 2c off on 25 to 100 gals. and 3c on over 100 gals.; Washington, 2c off to contract buyers.

Socony-Vacuum Oil Co., Inc.

Socony Mobilgas (*Regular Grade*)

	Com. Cons. T.W.	Undiv. Dlr. T.W.	Gasoline Taxes
New York City:			
Manhattan & Bronx	8.9	9.4	*5.5
Kings & Queens	8.9	9.4	*5.5
Richmond	8.5	9	5.5
Albany, N. Y.	8.7	9.2	5.5
Binghamton, N. Y.	9.8	10.3	5.5
Buffalo, N. Y.	9	9.5	5.5
Jamestown, N. Y.	9.2	9.7	5.5
Mt. Vernon, N. Y.	8.9	9.4	5.5
Plattsburg, N. Y.	9.8	10.3	5.5
Rochester, N. Y.	9.6	10.1	5.5
Syracuse, N. Y.	9.3	9.8	5.5
Bridgeport, Conn.	8.8	9.3	4.5
Danbury, Conn.	9.3	9.8	4.5
Hartford, Conn.	9.4	9.9	4.5
New Haven, Conn.	8.8	9.3	4.5
Bangor, Me.	9.5	10	5.5
Portland, Me.	9.1	9.6	5.5
Boston, Mass.	8.7	9.2	4.5
Concord, N. H.	10.2	10.7	5.5
Lancaster, N. H.	10.8	11.3	5.5
Manchester, N. H.	10.1	10.6	5.5
Providence, R. I.	8.8	9.3	4.5
Burlington, Vt.	9.7	10.2	5.5
Rutland, Vt.	9.8	10.3	5.5

	Mineral Spirits T.W.	V.M.&P. T.W.
Buffalo, N. Y.	11.4	12.6
†New York City	10	11
Rochester, N. Y.	12.2	13.4
Syracuse, N. Y.	13	....
Boston, Mass.	11.5	12
Hartford Conn.	13.3	14.3
Providence, R. I.	12.5	13

	Kerosine Yard	Kerosine TW	Mobilfuel Diesel TC	Mobilfuel Diesel TW	Mobilheat Fuel Yard	Mobilheat Fuel TW
New York:						
Manhat'n & Bronx	5.5	8	5.4	7.4	5.4	7
Kings & Queens	5.5	8	5.4	7.4	5.4	7
Richmond	5.5	8	5.4	7.4	5.4	7
Albany	5.7	7.7	5.5	7.5	5.5	7.2
Binghamton	7.1	9.1	...	8.9	6.9	8.4
Buffalo	6.4	8.4	6.3	8.3	6.3	8
Jamestown	6.6	8.6	...	...	6.5	7.9
Mt. Vernon	5.7	8.2	...	7.6	5.6	7.2
Plattsburg	6.3	8.3	...	8.1	6.1	7.6
Rochester	6.9	8.9	6.4	8.4	6.4	7.9
Syracuse	6.7	8.7	...	...	6.3	7.8
Conn.:						
Bridgeport	5.8	7.6	5.7	7.7	5.7	7
Danbury	6.3	8.3	6	8	6	7.3
Hartford	5.9	7.9	...	7.7	5.7	7.2
New Haven	5.6	7.6	...	7.5	5.5	7.1
Maine:						
Bangor	6.1	8.1	5.9	7.9	5.9	7.3
Portland	5.7	8.1	5.5	7.5	5.5	7.2
Mass.:						
Boston	5.8	8	5.6	7.6	5.6	7.2
N. H.:						
Concord	6.6	8.6	6.7	8.7	6.7	8.2
Lancaster	7.7	9.7	7.7	9.7	7.7	9.2
Manchester	6.7	9	6.4	8.4	6.4	7.9
R. I.:						
Providence	5.8	7.8	5.6	7.6	5.6	7.1
Vermont:						
Burlington	6.3	8.3	6	8	6	7.4
Rutland	6.5	8.5	...	8.2	6.2	7.7

*Plus 2% city sales tax computed at time of each sale.

†Prices apply to consumers only in quantities over 1000 gals. annually; for quantities under 1000 gals. annually, add 0.5c per gal.

Discounts: Diesel—On t.w. deliveries, 0.5c for at least 400 gals.; 1c for full tank truck.

Atlantic Refining

Atlantic White Flash Gasoline (*Regular Grade*)

	Commercial T.C.	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
Philadelphia, Pa.	8.5	9.5	5.5	10
Pittsburgh	9	10	5.5	10.5
Allentown	9	10	5.5	10.5
Erie	9	10	5.5	10
Scranton	9	10	5.5	10.5
Altoona	9	10	5.5	10.5
Emporium	9	10	5.5	10.5
Indiana	9	10	5.5	10.5
Uniontown	9	10	5.5	10.5
Harrisburg	9	10	5.5	10.5
Williamsport	9	10	5.5	10.5
Dover, Del.	...	10	5.5	10.5
Wilmington, Del.	...	9.5	5.5	10
Boston, Mass.	...	9.7	4.5	7.9
Springfield, Mass.	...	10.6	4.5	8.8
Worcester, Mass.	...	10.3	4.5	7.9
Fall River, Mass.	...	9.8	4.5	8.5
Hartford, Conn.	...	10.4	4.5	7.8
New Haven, Conn.	...	9.8	4.5	8.9
Providence, R. I.	...	9.8	4.5	8.5
Atlantic City, N. J.	...	9.5	4.5	7.8
Camden, N. J.	...	9.5	4.5	7.8
Trenton, N. J.	...	9.5	4.5	7.6
Annapolis, Md.	...	9.85	5.5	8.5
Baltimore, Md.	...	9.25	5.5	7.5
Hagerstown, Md.	...	10.35	5.5	8
Richmond, Va.	...	10.05	6.5	10
Wilmington, N. C.	...	10.35	7.5	9.6
Brunswick, Ga.	...	9.5	7.5	*9
Jacksonville, Fla.	...	9.5	8.5	10

	Mineral Spirits T.W.†	V.M.&P. T.W.†
Philadelphia, Pa.	10.5	12
Lancaster, Pa.	11.5	13
Pittsburgh, Pa.	14.5	14.5

Fuel Oils—T.W.	1	2	3	5	6
Phila., Pa.	8	7	7	4.75	3.75
Allentown, Pa.	8.5	7.2	7.2	....	....
Wilmington, Del.	8.00	7	7	....	....
Springfield, Mass.	8.8	7.3	7.3	....	....
Worcester, Mass.	7.9	7.2	7.2	....	....
Hartford, Conn.	7.8	6.9	6.9	....	....

*Does not include 1c Georgia kerosine tax.

†Mineral Spirits prices also apply to Stoddard Solvent; V.M.&P. prices also apply to Light Cleaners Naphtha.

Discounts:

Gasoline—to undivided dealers, 0.5c off dealer t.w., except Georgia & Florida dealer t.w. and undivided dealer t.w. prices are same.

Kerosine—Thru Penna. & Delaware, 2c off t.w. price on t.w. deliveries of 25 gals. or more at one time.

S. O. Ohio††

***Sohio X-70 Gasoline**

(*Regular Grade*)

	Consumer T.W.	**Resellers	Gasoline ‡S.S.	Gasoline Taxes	†Kerosine T.W.
Ohio, Statewide	12	10	13.5	5.5	9
Akron	12	9	11.5	5.5	9
Cincinnati	12	8.7	11.5	5.5	9
Cleveland	12	9.5	12.5	5.5	9
Columbus	12	9.5	12.5	5.5	9
Dayton	12	8.8	11.5	5.5	9
Marietta	12	9.5	12.5	5.5	9
Portsmouth	12	9.5	12.5	5.5	9
Toledo	12	8.75	11.5	5.5	9
Youngstown	12	9.5	12.5	5.5	9

Aviation Gasoline—Statewide

	Consumer T.W.	Gasoline Taxes
Sohio Aviation	14.5	5.5
Esso Ethyl Aviation 74 Oct.	15.5	5.5
Esso Ethyl Aviation 80 Oct.	16.5	5.5
Esso Ethyl Aviation 91 Oct.	17.5	5.5
Esso Ethyl Aviation 100 Oct.	24.5	5.5

	†Naphthas—T.W. Statewide	Lucas County
S. R. Solvent	13.5	13.5
D. C. Naphtha	14.5	14.25
V.M.&P. Naphtha	14.5	14.25
Varnolene	14.5	14.25
Sohio Solvent	14.5	14.25

Fuel Oils—T.W.	No. 1	No. 2	No. 3	No. 4
Ohio, Statewide	8	8	7.5	....
Cleveland	10	10	9.5	7.25

*Renown (third-grade) prices are same as X-70 unless otherwise noted.

**Except authorized agents.

†Kerosine prices are ex 1c state tax. Naphtha prices are ex 1.5c federal & 4c state tax.

‡Prices at company-operated stations.

††Statewide prices are subject to exceptions other than those shown.

Discounts:

Esso aviation—on contract to hangar operators and resellers, 2c off consumer t.w.

Fuel Oils—Statewide prices are for t.w. & drum deliveries of 50 gals. or more; prices for deliveries of less than 50 gals. are 0.5c higher. Cleveland Nos. 1, 2, and 3 prices are for bulk deliveries of 5 to 99 gals.; 100 gals. and over are 2c less. Cleveland No. 4 price is for full compartment hose dump only.

Naphthas—to contract consumers off t.w. prices—Statewide: 300 to 999 gals., 0.5c; 1000 to 2499 gals., 0.75c; 2500 to 4999 gals., 1c; 5000 or more gals., 1.5c. Lucas County: Less than 50 gals., tank wagon price; 50 to 249 gals., 0.5c; 250 to 499 gals., 1c; 500 gals. or over, 1.5c.

S. O. Kentucky

Crown Gasoline (*Regular*)

Standard (*Third Grade*)

	†Net Dealer Crown	Standard	Gasoline Taxes	Kerosine T.W.
Covington, Ky.	8.5	7.5	6.5	9
Lexington, Ky.	10.5	9.5	6.5	9
Louisville, Ky.	10	9	6.5	8.5
Paducah, Ky.	10	9	6.5	6.5
Jackson, Miss.	9.5	8.5	7.5	*8.5
Vicksburg, Miss.	9.5	8.5	7.5	*8
Birmingham, Ala.	10	9	*8.5	8
Mobile, Ala.	9	7	*9.5	8.5
Montgomery, Ala.	10	9	*9.5	*9
Atlanta, Ga.	10.5	9.5	7.5	*9
Augusta, Ga.	10.5	9.5	7.5	*8.5
Macon, Ga.	10.5	9.5	7.5	*9
Savannah, Ga.	9.5	...	7.5	*8
Jacksonville, Fla.	9.5	8.5	8.5	8
Miami, Fla.	9.5	8.5	8.5	8
Pensacola, Fla.	9	8	*9.5	8
Tampa, Fla.	9.5	8.5	8.5	8

*Taxes: In tax column are included these city and county gasoline taxes: Mobile, 2c city; Birmingham, 1c city; Montgomery, 1c city and 1c county; Pensacola, 1c city. Georgia and Montgomery, Ala. have 1c kerosine tax. Mississippi 0.5c, not included in above prices.

†Consumer t.w. prices are same as net dealer prices.

S. O. Indiana

Red Crown (*Regular Grade*)

Standard (*Third Grade*)

	Red Crown	Dealer Prices Red Crown	Stanolind	Gasoline Taxes	Kerosine T.W.
Chicago, Ill.	11.6	9.6	8.5	4.5	10.3
Decatur, Ill.	11.6	8.9	8	4.5	9.5
Joliet, Ill.	11.9	9.6	8.5	4.5	10.3
Peoria, Ill.	11.7	10.2	9.7	4.5	10.1
Quincy, Ill.	10.9	7.9	7.9	4.5	10
Indianapolis, Ind.	11.6	9.7	9.6	5.5	*9.8
Evansville, Ind.	11.4	9.9	9.4	5.5	*9.6

(Continued on next page)

TANK WAGON PRICES

Commercial or consumer tank car, tank wagon, dealer, and service station prices for gasoline **do not include taxes;** *they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include 1.5c federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices also do not include taxes; kerosine taxes where levied are indicated in footnotes. Dealer discounts are shown in footnotes. These prices in effect Aug. 18, 1941 as posted by principal marketing companies at their headquarters offices, but subject to later correction.*

S. O. Indiana (Cont'd)

Red Crown (*Regular Grade*)
Stanolind (*Third Grade*)

	Red Crown Cons. T.W.	Dealer Prices Red Crown T.W.	Stanolind T.W.	Gasoline Taxes	Kerosine T.W.
South Bend, Ind	12	10.5	10	5.5	*10.2
Detroit, Mich	11.4	9.9	9.4	4.5	9.6
Grand Rapids, Mich	11.4	9.9	9.4	4.5	9.6
Saginaw, Mich	11.4	9.9	9.4	4.5	9.6
Green Bay, Wis	12.2	10.7	10.2	5.5	10.6
Milwaukee, Wis	12.1	10.6	10.1	5.5	10.5
La Crosse, Wis	11.9	10.4	9.9	5.5	10.3
Minneapolis-St. Paul	11.9	10.4	9.5	5.5	10.3
Duluth, Minn	12.2	10.7	10.2	5.5	10.6
Mankato, Minn	11.9	10.4	9.5	5.5	10.3
Des Moines, Ia	11.4	8.4	7.9	4.5	*9.8
Davenport, Ia	11.7	10.2	9.7	4.5	*10.1
Mason City, Ia	11.7	10.2	9.3	4.5	*10.1
St. Louis, Mo	8.9	7.4	7.1	*4.5	9.8
Kansas City, Mo	10.4	8.9	7.9	*4.5	9.4
St. Joseph, Mo	11.2	9.7	8.7	*4.5	9.6
Fargo, N. D	12.9	9.4	10	5.5	11.3
Huron, S. D	12.3	10.8	10.3	5.5	10.7
Wichita, Kans	10.3	8.8	7	4.5	8

	Stanavo Aviation 73 Octane	
Chicago, Ill	15.7	4.5
Milwaukee, Wis	15.9	5.5
Minneapolis, Minn	15.7	5.5
St. Louis, Mo	15.2	*4.5
Kansas City, Mo	14.8	*4.5
Fargo, N. D	16.7	5.5
Huron, S. D	16.1	5.5

	Oleum Spirits	V.M.&P. Naphtha	Stanisol	*Taxes
(Prices are base prices before discounts)				
Chicago	13.5	13.8	12.8	4.5
Detroit	16	15	16.5	4.5
K. C., Mo	13.3	14.3	13.8	1.5
St. Louis, Mo	13.7	14.7	13.2	1.5
Milwaukee	14.4	15.4	13.1	5.5
Minneap'lis	14.2	15.2	13.5	5.5

	Fuel Oils T.W. Standard Heater Oil Chicago:
1-99 gals	8.75
100-149 gals	7.75
150 gals. & over	7.25

	Stanolex Fuel Oil No. 1	Stanolex Furnace Oil
1-99 gals	8.5	8.5
100-149 gals	7.5	7.5
150-399 gals	7.25	7.25
400 gals. & over	6.75	6.75

	Stanolex Fuel Oil A	Stanolex Fuel Oil B
1-99 gals	8	8
100-399 gals	7	7
400-749 gals	6	6
750 gals. & over	5.25	5.25

	Stanolex Bunker C Fuel Oil
1-399 gals	6.5
400-999 gals	5.5
1000 gals. & over	4.5

Other Points:	Stanolex No. 1	Stanolex Furnace Oil
Indianapolis		
1-99 gals	...	*8.7
100 gals. & over	...	*7.7
Detroit		
1-99 gals	...	7.8
100 gals. & over	...	6.8
Milwaukee		
1-99 gals	9.2	8.7
100 gals. & over	8.2	7.7
Minneapolis		
1-99 gals	8.5	8.5
100 gals. & over	...	7.5
100-199 gals	8	...
200 gals. & over	7.5	...
St. Louis		
1-99 gals	8	7.5
100 gals. & over	7	6.5
Kansas City		
1-49 gals	7.8	...
50 gals. & over	6.8	...
1-99 gals	...	7.8
100 gals. & over	...	6.8

*Taxes: In gasoline tax column are included these city taxes—Kansas City, St. Joseph, and St. Louis, 1c. Indiana kerosine and fuel oil prices are ex 4c state tax; Iowa kerosine prices are ex 3c state tax. In naphtha tax column are included 1.5c federal tax and state taxes.

S. O. Nebraska

Standard Red Crown Gasoline (*Regular Grade*)

	T.W.	Dealer	Gasoline Taxes	Kerosine T.W.
Omaha	11.4	8.9	6.5	9.8
McCook	12	9.4	6.5	9.5
Norfolk	11.9	10.4	6.5	10.3
North Platte	12.3	9.9	6.5	10.7
Scottsbluff	12.4	9.5	6.5	10

S. O. Louisiana

Esso Gasoline (*Regular Grade*)

	Consumer Tank Car	Dealer T.w.	Gasoline Taxes	Kerosine T.W.
New Orleans, La	6.75	9.25	8.5	*9
Baton Rouge, La	6.75	9.25	8.5	*9.5
Alexandria, La	6.75	9.25	8.5	*9.5
Lafayette, La	7	9.5	8.5	*9
Lake Charles, La	7	9.5	8.5	*9
Shreveport, La	6.5	9	8.5	*9
Knoxville, Tenn	9.5	12	8.5	12.5
Memphis, Tenn	7.75	10.25	8.5	10.5
Chattanooga, Tenn	9	11	8.5	11
Nashville, Tenn	9.25	11	8.5	10
Bristol, Tenn	9.75	10.25	8.5	12
Little Rock, Ark	7.5	10	8	10

*Louisiana kerosine prices are ex 1c state tax.
Discounts:
Esso Gasoline—To undivided dealers, 0.5c off dealer t.w.

Humble Oil & Refining Co.

Humble Motor Fuel (*Regular Grade*)
Thriftane (*Third Grade*)

	Humble *Tank Wagon	Humble Re-tail	Thriftane *Tank Wagon	Thriftane Re-tail	Gasoline Taxes
Dallas, Tex	7.5	11.5	6	9	5.5
Ft. Worth, Tex	7.5	11.5	6	9	5.5
Houston, Tex	8	12	6	9	5.5
San Antonio, Tex	8	12	6	6	5.5

	Kerosine *Tank Wagon	Kerosine Retail
Dallas, Tex	7	11
Ft. Worth, Tex	7	11
Houston, Tex	8	11
San Antonio, Tex	7	10

74 Oct. Aviation Gasoline, Clear	Tank Car
FOB Baytown, Tex	8.5

*To all classes of dealers & consumers.

The Texas Co.

	Gasoline—Dealer Fire-Chief (*Regular*)	T.W. Indian (*3rd Grade*)	Gasoline Taxes
Dallas, Tex	8	6.5	5.5
Ft. Worth, Tex	8	6.5	5.5
Wichita Falls, Tex	8	6.5	5.5
Amarillo, Tex	8	6.5	5.5
Tyler, Tex	8	6.5	5.5
El Paso, Tex	10.5	9.5	5.5
San Angelo, Tex	8	6.5	5.5
Waco, Tex	8	6.5	5.5
Austin, Tex	8	6.5	5.5
Houston, Tex	8	6.5	5.5
San Antonio, Tex	8	6.5	5.5
Port Arthur, Tex	8	6.5	5.5

Continental Oil Co.

	Conoco Bronz-z-z (*Regular*) †Tank Wagon	Demand (*3rd Grade*) †Tank Wagon	Gasoline Taxes	Kerosine T.W.
Denver, Col	10	9	5.5	11
Grand Junction, Col	12.5	11.5	5.5	12.5
Pueblo, Col	9.5	8.5	5.5	9.5
Casper, Wyo	11.5	10.5	5.5	12
Cheyenne, Wyo	10.5	9.5	5.5	11.5
Billings, Mont	11.5	10.5	6.5	12.5
Butte, Mont	10.5	9.5	6.5	13.5
Great Falls, Mont	10.5	9.5	6.5	12.5
Helena, Mont	10.5	9.5	6.5	13
Salt Lake City, Utah	13.5	12.5	5.5	14.5
Boise, Ida	13.6	12.6	6.5	16.5
Twin Falls, Ida	14.6	13.6	6.5	17
Albuquerque, N. M	10.5	9.5	*7	10
Roswell, N. M	8.5	7.5	*7	8.5
Santa Fe, N. M	10.5	9.5	*7.5	10
Ft. Smith, Ark	8.5	5.75	*7	6.5
Little Rock, Ark	9.25	6.15	8	8
Texarkana, Ark	8.5	6.5	*5.5	6
Muskogee, Okla	8.5	7.5	7	8
Oklahoma City, Okla	8	7.5	7	8
Tulsa, Okla	8	7.5	7	8

*Taxes: In gasoline tax column are included these city taxes—Albuquerque, & Roswell, 0.5c; Santa Fe, 1c. Texas 4c state tax applies within city limits of Texarkana, Ark.; Okla. 5.5c state tax applies within city limits of Ft. Smith, Ark.
†To consumers & dealers.
Discounts: To dealers only—Cheyenne 1.5c on Bronz-z-z & Demand.

S. O. California

Standard Gasoline (*Regular Grade*)
Flight Gasoline (*Third Grade*)

	Standard Tank Truck Retail	Flight Tank Truck Retail	Gasoline Taxes
San Francisco, Cal	13 14	11 12	4.5
Los Angeles, Cal	12.5 13.5	10.5 11.5	4.5
Fresno, Cal	14 15	12 13	4.5
Phoenix, Ariz	15 16	12 13	6.5
Reno, Nev	15 16	15 14	5.5
Portland, Ore	13.5 14.5	11.5 12.5	6.5
Seattle, Wash	13.5 14.5	11.5 12.5	6.5
Spokane, Wash	15 16	13 14	6.5
Tacoma, Wash	13.5 14.5	11.5 12.5	6.5

	Stanavo Tank Truck	Aviation Gasoline Taxes	Kerosine Tank Truck
San Francisco, Cal	15.5	4.5	11.5
Los Angeles, Cal	15	4.5	10
Fresno, Cal	16.5	4.5	12.5
Phoenix, Ariz	17.5	6.5	12.5
Reno, Nev	17.5	5.5	13.5
Portland, Ore	16	6.5	13.5
Seattle, Wash	16	6.5	13.5
Spokane, Wash	19	6.5	16.5
Tacoma, Wash	16	6.5	13.5

Discounts:
To Resale & Commercial Consumers—3c off posted tank truck tax included price on Standard & Stanavo Aviation, 2c off on Flight. Deliveries less than 40 gals. to commercial consumer trade, 1c a gal. above posted tank truck tax included price, except single deliveries to Marine trade only which are billed at posted tank truck tax included price less 3c for Standard & Stanavo Aviation, and less 2c for Flight.
Kerosine—Tank car and truck & trailer deliveries, 3c off posted tank truck price; plant stem deliveries to jobbers, 2.5c off posted tank truck price.

Canada

PRICES OF IMPERIAL OIL, LTD.
Per Imperial Gallon, which is 1.2 U. S. Gallons
3-Star Imperial Gasoline (*Regular Grade*)

	†Gasoline T.W.	*Gasoline Taxes	†Kerosine T.W.
Hamilton, Ont	16.5	11	18
Toronto, Ont	16.5	11	18
Brandon, Man	21	10	23
Winnipeg, Man	20.5	10	22.5
Regina, Sask	18	10	20
Saskatoon, Sask	20.8	10	22.8
Edmonton, Alta	18.9	10	20.9
Calgary, Alta	16	10	18
Vancouver, B. C	15	10	24
Montreal, Que	16	11	17.5
St. John, N. B	15.5	13	19
Halifax, N. S	15.5	13	19

*Includes 3c Federal, and Provincial taxes.
†To divided & undivided dealers

Tank Wagon Price Changes

(These changes have been made in price tables)

Socony Vacuum—Kerosine:
Yard & t. w. up 0.1c at all points Aug. 13 except Syracuse & Jamestown unchanged.

S. O. Kentucky—Standard Gasoline:
Savannah discontinued Aug. 1.

S. O. Indiana—Red Crown Gasoline:
Decatur dealer cut 0.5c Aug. 13. St. Louis t. w. & dealer cut 1c Aug. 12.

S. O. Indiana—Stanolind Gasoline:
Decatur dealer cut 0.5c Aug. 13. St. Louis dealer cut 0.6c Aug. 12.

The Texas Co.—Indian Gasoline:
All points up 0.5c Aug. 13 except El Paso unchanged.

CRUDE OIL PRICES

Prices in $ per bbl. of 42 U. S. gals. at the well. A. P. I. gravity. Prices are effective as of 7 a. m. of dates shown.

EASTERN & CENTRAL STATES FIELDS

PENNSYLVANIA GRADE

Posted by Jos. Seep Purch. Agency (Aug. 14, '41)
Bradford-Allegany $2.98
Southwest Penna. $2.65
Eureka (West Va.) $2.59
Corning, O. (May 27, '41) $1.31

Posted by Tide Water Assoc. Oil Co. (Aug. 14, '41)
Bradford-Allegany $2.98

Posted by The Pennzoil Co. (Aug. 14, '41)
National Transit $2.91*

Posted by Valvoline Pipe Lines (Aug. 14, '41)
Bradford (Elk & McKean Counties, Pa.) $2.98
Warren, Forest, Venango, Clarion & Butler Counties, Pa. $2.91
Alleghany, Beaver, Washington & Greene Counties, Pa. $2.65
West Virginia $2.59
South Eastern Ohio $2.55

*Applies to Cochran, Franklin, Hamilton & Doolittle districts; prices in other lower districts range down to $2.86 per bbl. at well.

MICHIGAN

Posted by Pure Oil Co. (May 27, '41)
Midland, Midland County $1.44
Sherman $1.39

Posted by Simrall Corp. (May 27, '41)
Greendale, Porter, Vernon, Crystal & Wise $1.44
Buckeye, Bentley, Edenville, Beaverton & Monitor (sweet crude type) $1.42
Freeman, Redding, Lincoln & Winterfield $1.39
West Branch-Arenac $1.24
Hamilton-Grout $1.29

Posted by Sohio Corp. (Mich. Div.)
Traverse crude in Allegan, Kent, Ottawa & Van Buren Cos. (June 2, '41) $1.45
Trenton crude, Monroe Co. (June 2, '41) $1.39

Posted by Bay Pipe Line Corp. (May 27, '41)
Saginaw & Wise $1.44
Clare $1.11
Buckeye, Bentley & Kawkawlin $1.42
Adams (June 1, '41) $1.27

ILLINOIS-INDIANA-KENTUCKY-OHIO

Posted by Sohio Corp. (May 21, '41)
Illinois Basin, including Griffin pool $1.37
Carmi Storms, Ill. area $1.32
Birk City, Ky. area $1.32
Corydon, Ky. area, Henderson $1.32

Posted by Ohio Oil Co. (May 21, '41)
Illinois Basin $1.37
Eastern Ill. & Western Ind. 1.22

Posted by Carter Oil Co. (May 21, '41)
Louden, Fayette Co. Ill. $1.37

Posted by Mohawk Oil Lines, Inc. (May 21, '41)
Southern Illinois $1.37

Posted by Ashland Oil & Transp. Co.
Somerset oil in Ash. Lines, Ky.: (June 19, '41)
Big Sandy River $1.38
Kentucky River $1.43

Posted by Ownesboro-Ashland Co.
Owensboro, Ky. area (May 21, '41) $1.32

Posted by S. O. Ohio (May 28, '41)
Lima, O. $1.17
Cleveland, Lodi & Chatham (O.) areas $1.22

MID-CONTINENT

OKLAHOMA-KANSAS-NORTH TEXAS

(See below for companies posting and dates)

Gravity	Schedule No. 1 $	Schedule No. 2 $	Schedule No. 3 $	Schedule No. 4 $
Below 21	$0.85	$0.75	$0.70	$0.78
21-21.9	.87	.78	.73	.80
22-22.9	.89	.81	.76	.82
23-23.9	.91	.84	.79	.84
24-24.9	.93	.87	.82	.86
25-25.9	.95	.90	.85	.88
25-26.9	.97	.93	.88	.90
27-27.9	.99	.96	.91	.92
28-28.9	1.01	.99	.94	.94
29-29.9	1.03	1.02	.97	.96
30-30.9	1.05	1.05	1.00	.98
31-31.9	1.07	1.07	1.02	1.00
32-32.9	1.09	1.09	1.04	1.02
33-33.9	1.11	1.11	1.06	1.04
34-34.9	1.13	1.13	1.08	1.06
35-35.9	1.15	1.15	1.10	1.08
36-36.9	1.17	1.17	1.12	1.10
37-37.9	1.19	1.19	1.14	1.12
38-38.9	1.21	1.21	1.16	1.14
39-39.9	1.23	1.23	1.18	1.16
40 & above	1.25	1.25	1.20	1.18

Above schedules posted by:

No. 1: **S. O. Indiana** May 20, '41 in Okla. & Kans. **Sinclair-Prairie** May 20, '41 in Okla. & Kans. beginning with 25-25.9. **Continental** May 19, '41 in Okla. & Kans. beginning with Below 29 at $1.01. **Texaco** May 19, '41 in Okla. & Kans. beginning with 28-28.9 at $1.01.

No. 2: **Carter** May 20, '41 in Okla. **Shell** May 19, '41 in Okla. & Kans. (exclusive of Carter Co., Okla.) **Magnolia** May 21, '41 in Okla.

No. 3: **Shell** May 19, '41 in Carter Co., Okla.

No. 4: **Stanolind** May 20, '41 in N. Texas. **Magnolia** May 21, '41 in N. & N. Central Texas. **Sinclair-Prairie** May 21, '41 in N. Central Texas. **Continental** May 21, '41 in N. Texas. **Texaco** May 21, '41 in N. & N. Central Texas. **Magnolia, Sinclair-Prairie & Continental** schedules begin with Below 29 at $0.94. **Texaco** schedule begins with 28-28.9 at $0.94.

TEXAS & NEW MEXICO FIELDS

Posted by Humble Oil & Refining Co.

(May 21, '41, except Panhandle, Tex. July 9, '41)

Gravity	Refugio	Texas Gulf Coast	Miran-do	Ana-huac	Dick-inson	East Central Texas	West Central Texas	Pan-handle, Texas	W. Texas & New Mex.	Hawkins Texas
Below 20	$1.08	$1.06	$1.03	$0.98	$0.93	.....	.....	$0.73	$0.70	$0.80
20-20.9	1.10	1.08	1.05	1.00	.95	.....	.....	.75	.72	.82
21-21.9	1.12	1.10	1.07	1.02	.97	.....	.....	.77	.74	.84
22-22.9	1.14	1.12	1.09	1.04	.99	.....	.....	.79	.76	.86
23-23.9	1.16	1.14	1.11	1.06	1.01	.....	.....	.81	.78	.88
24-24.9	1.18	1.16	1.13	1.08	1.03	.....	.....	.83	.80	.90
25 & above	.....	.....	.....	.....	.....	.....	.....	.....	.....	.92
25-25.9	1.20	1.18	1.15	1.10	1.05	$0.97	$0.88	.85	.82	.....
26-26.9	1.22	1.20	1.17	1.12	1.07	.99	.90	.87	.84	.....
27-27.9	1.24	1.22	1.19	1.14	1.09	1.01	.92	.89	.86	.....
28-28.9	1.26	1.24	1.21	1.16	1.11	1.03	.94	.91	.88	.....
29-29.9	1.28	1.26	1.23	1.18	1.13	1.05	.96	.93	.90	.....
30-30.9	1.30	1.28	1.25	1.20	1.15	1.07	.98	.95	.92	.....
31-31.9	1.32	1.30	1.27	1.22	1.17	1.09	1.00	.97	.94	.....
32-32.9	1.34	1.32	1.29	1.24	1.19	1.11	1.02	.99	.96	.....
33-33.9	1.36	1.34	1.31	1.26	1.21	1.13	1.04	1.01	.98	.....
34-34.9	1.38	1.36	1.33	1.28	1.23	1.15	1.06	1.03	1.00	.....
35-35.9	1.40	1.38	1.35	1.30	1.25	1.17	1.08	1.05	1.02	.....
36-36.9	1.42	1.40	1.37	1.32	1.27	1.19	1.10	1.07	1.04	.....
37-37.9	1.44	1.42	1.39	1.34	1.29	1.21	1.12	1.09	1.06	.....
38-38.9	1.46	1.44	1.41	1.36	1.31	1.23	1.14	1.11	1.08	.....
39-39.9	1.48	1.46	1.43	1.38	1.33	1.25	1.16	1.15	1.10	.....
40 & above	1.50	1.48	1.45	1.40	1.35	1.27	1.18	1.15	1.12	.....

Refugio: Includes crude purchased in East White Point, Greta, Melon Creek, O'Connor-McFaddin, Plymouth, Saxet, Taft, & Tom O'Connor fields.

Texas Gulf Coast: Includes crude purchased in Amelia, Clear Lake, Goose Creek, Hastings, Magnet, Mykawa, Mykawa New, Raccoon Bend, South Thompsons, Sugarland, Thompsons, & Webster fields.

Mirando: Includes crude purchased in Blanchard, Bridwell, Colorado, Comitas, Eagle Hill, Escobas, Fitzsimmons, Glen, Government Wells (North & South), Heyser, Hoffman, Kelsey, Kohler, Loma Novia, Lundell, Manila, Mirando Valley, Placedo, Randado, Sarnosa, & Tesoro fields.

Anahuac: Includes crude purchased in Anahuac, Angleton, Cedar Point, Fishers' Reef, Hull (Old & New), Pierce Junction, Red Fish Reef, & Turtle Bay fields.

Dickinson: Includes crude purchased in Dickinson, Gillock, Hardin, League City, & Rowan fields.

East Central Texas: Includes crude purchased in Anderson, Cherokee, Limestone, & Navarro Counties, and Navarro Crossing field.

West Central Texas: Includes crude purchased in Brown, Callahan, Comanche, Eastland, Fisher, Haskell, Jones, Shackelford, Stephens, & Throckmorton Counties.

Panhandle, Texas: Includes crude purchased in Carson, Gray, Hutchinson & Wheeler Counties.

West Texas & New Mexico: Includes crude purchased in Andrews, Crane, Crockett, Ector, Gaines, Glasscock, Howard, Reagan, Upton, Winkler, & Yoakum Counties, Texas; Lea County, N. M.

Hawkins: Includes crude purchased in Hawkins Field, Wood County, Texas.

Conroe $1.43
Tomball 1.40
Van 1.08
Talco 0.79
East Texas & Flag Lake $1.25
Flour Bluff, E. Flour Bluff 1.33
Salt Flat, N. Salt Flat 1.14
Darst Creek, Hilbig, Carroll 1.14
Clark, Zoboroski $1.14
Alice, Benavides (N. Sweden), Sun 1.35
Ben Bolt, Clark-Muil, Tom Graham 1.35
Yates (Pecos) 0.95
La Rosa 1.33

MAGNOLIA PETROLEUM CO.

(May 21, '41)

Panhandle, Tex.—(July 9, '41)—Same as Humble except Magnolia begins with Below 29 at $0.91.

West Texas—In Crane, Upton, Howard, Glasscock, Mitchell, Winkler, Cochran, Hockley, Yoakum & Gaines Cos.—Same as Humble except Magnolia begins with Below 25 at $0.80.

N. Mexico—In Lea Co.—Same as Humble except Magnolia begins with Below 25 at $0.80 & ends with 36 & above at $1.04.

Cass & Panola Cos., Tex.—Below 25 at $0.88, plus 2c per degree of gravity to 40 & above at $1.20.

Mirando, Tex.—Same as Humble.

East Texas $1.25
Darst Creek 1.14
Luling 1.05
Talco 79
Lytton Springs $1.17
Cleveland-Liberty Co. 1.26
Tomball 1.40

SINCLAIR-PRAIRIE OIL MARKETING CO.

Texas Panhandle—(May 23, '41)—Same as Humble except Sinclair-Prairie begins with Below 25 at $0.83.

West Texas & New Mexico—(May 30, '41)—Same as Humble except Sinclair-Prairie begins with Below 25 at $0.80.

Texas Gulf Coast—(May 21, '41)—Same as Humble.

Mexia District, Texas—(May 30, '41)—Same as Humble, East Central Texas, except Sinclair-Prairie also posts Below 25 at $0.95.

East Texas—(May 21, '41) $1.25
Long Lake, Texas—(May 21, '41) 1.23

STANOLIND OIL PURCHASING CO.

(May 21, '41)

Clinton, Tex.—Same as Humble Tex. Gulf Coast except Stanolind begins with Below 21 at $1.08.

Fairbanks, N. Houston & Rosslyn, Tex.—Same as Humble Dickinson schedule.

E. Texas $1.25
Satsuma & Tomball, Tex. $1.40

STANOLIND OIL & GAS CO.

(May 21, '41)

W. Beaumont & Spindletop (Jefferson Co., Tex.) **& High Island** (Galveston Co., Tex.)—Same as Humble Tex. Gulf Coast.

Hendrick & Henderson (Winkler Co., Tex.)—Same as Humble Panhandle except Stanolind begins with Below 26 at $0.82.

THE TEXAS CO.

(May 21, '41)

Panhandle, Tex.—Same as Humble except Texaco begins with 34-34.9 at $1.03.

W. Texas & Lea Co., N. M.—Same as Humble except Texaco posts $0.78 for 23.9 & below and ends with 36 & above at $1.04.

Texas Gulf Coast—Same as Humble except Texaco ends with 34 & above at $1.36.

Duval, Mirando, Tex.—Same as Humble Mirando except Texaco ends with 28-28.9 at $1.21.

Refugio, Tex.—Same as Humble except Texaco ends with 28-28.9 at $1.26.

East Texas $1.25
Darst Creek, Tex. 1.14
Hockley & Cochran Cos., Tex. ..... .87
Cass Co., Tex. $1.20
Conroe, Tex. 1.43

SHELL OIL CO., INC.

(May 20, '41)

West Texas & Lea Co., N. M.—Same as Humble except Shell ends with 36 & above at $1.04.

Fisher Co., Tex.—Same as Humble W. Central Texas except Shell begins with Below 25 at $0.86.

East Texas $1.25
Livingston field, Polk Co., Tex. 1.25
Pecos Co., Tex., except Yates Shallow pool $0.95
Pecos Co., Yates Shallow pool ..... .82

CONTINENTAL OIL CO.

Carson & Hutchinson Cos., Tex.—(July 9, '41)—Same as Humble Panhandle except Continental begins with Below 29 at $0.91.

Mirando, Tex.—(July 1, '41)—Same as Humble.

Wade City & Clara Driscoll, Tex.—(July 1, '41)—Same as Humble Refugio.

Alfred & Magnolia City, Tex.—(May 21, '41), $1.35.

Eddy Co., N. M.—(May 30, '41)—Same as Humble N. M. schedule except Continental begins with Below 29 at $0.88.

PAN AMERICAN PRODUCTION CO.

(May 21, '41)

Hastings & S. Houston, Tex.—Same as Humble Tex. Gulf Coast except Pan Am. begins with Below 21 at $1.08.

Gillock, Tex.—Same as Humble Dickinson except Pan Am. begins with Below 21 at $0.95.

East Texas $1.25
Cayuga, Tex. ..... .90

CRUDE OIL PRICES

Prices in $ per bbl. of 42 U. S. gals. at the well. A. P. I. gravity. Prices are effective as of 7 a. m. of dates shown.

CALIFORNIA

Posted by S.O California, May 23, 1941

(All gravities above those quoted take highest price offered in that field)

Gravity	Signal Hill (Long Beach)	Wilmington	El Segundo	Seal Beach	Huntington Beach	Inglewood	Olinda Brea Canon	Athens-Rosecrans	Torrance	Richfield	Whittier East Coyote (La Habra)	Montebello	West Coyote Hills	Santa Fe Springs	Greeley, Canal, Waaco	Coles Levee	Mountain View	Elk Hills, Buena Vista Hills, Midway-Sunset, Lakeview Area	Lost Hills	Coalinga	Gravity
14-14.9	....	$0.68	....	....	$0.71	....	$0.70	....	$0.70	$0.70	$0.70	$0.72	....	....	....	....	....	$0.73	$0.73	$0.73	14-14.9
15-15.9	....	.71	....	....	.75	$0.76	.72	....	.72	.71	.72	.72	....	....	....	....	....	.73	.73	.73	15-15.9
16-16.9	....	.74	$0.79	....	.79	.79	.75	....	.74	.73	.75	.72	....	....	....	....	....	.73	.75	.73	16-16.9
17-17.9	....	.78	.82	....	.82	.82	.78	....	.77	.76	.78	.72	....	....	....	....	....	.75	.78	.73	17-17.9
18-18.9	$0.80	.82	.86	....	.86	.85	.81	....	.80	.79	.82	.74	....	....	....	....	....	.78	.81	.73	18-18.9
19-19.9	.84	.86	.90	....	.89	.88	.85	....	.83	.82	.85	.77	....	....	....	....	$0.73	.81	.84	.75	19-19.9
20-20.9	.88	.90	.94	....	.93	.92	.88	....	.86	.85	.89	.80	....	....	....	....	.76	.85	.87	.77	20-20.9
21-21.9	.92	.94	.98	....	.96	.95	.91	....	.89	.89	.92	.84	....	....	....	....	.79	.90	.90	.80	21-21.9
22-22.9	.96	.98	1.02	$0.88	.99	.98	.95	....	.93	.93	.96	.87	....	....	....	....	.83	.94	.93	.83	22-22.9
23-23.9	1.00	1.02	1.05	.92	1.02	1.01	.98	....	.97	.98	1.00	.91	....	....	....	....	.87	.99	.96	.86	23-23.9
24-24.9	1.03	1.06	1.07	.97	1.05	1.04	1.01	....	1.01	1.02	1.03	.94	$0.99	....	....	....	.90	1.03	.99	.89	24-24.9
25-25.9	1.07	1.09	1.10	1.01	1.08	1.07	1.04	....	1.05	1.06	1.07	.98	1.02	....	....	....	.94	1.07	1.01	.92	25-25.9
26-26.9	1.11	1.12	1.12	1.06	1.11	1.10	1.08	....	1.09	1.10	1.11	1.01	1.06	....	....	....	.97	1.11	1.04	.95	26-26.9
27-27.9	1.15	1.15	1.15	1.10	1.14	1.14	1.11	....	1.13	....	1.15	1.05	1.10	$1.04	....	....	1.01	1.15	1.07	.98	27-27.9
28-28.9	1.18	1.18	1.17	1.15	1.17	1.17	1.14	....	1.17	....	....	1.08	1.13	1.08	....	....	1.04	1.19	1.10	1.00	28-28.9
29-29.9	1.20	1.21	....	1.19	1.20	1.20	....	$1.17	....	....	....	1.12	1.17	1.12	....	....	1.07	1.24	1.13	1.02	29-29.9
30-30.9	1.23	1.24	....	....	1.23	1.22	....	1.21	....	Elwood	....	1.15	1.21	1.15	$1.01	$1.09	1.10	1.28	1.16	1.04	30-30.9
31-31.9	....	....	....	....	....	1.24	....	1.25	....	Terrace	....	1.19	1.24	1.19	1.04	1.12	1.14	....	....	1.06	31-31.9
32-32.9	....	....	....	....	....	....	....	1.29	....	F.o.b. Ship	....	1.23	1.28	1.23	1.07	1.14	1.17	....	....	1.09	32-32.9
33-33.9	....	....	....	....	....	....	....	1.32	....	$1.22	....	1.27	....	1.26	1.10	1.17	....	....	....	1.11	33-33.9
34-34.9	Kettleman Hills						....	1.36	....	1.25	....	1.31	....	1.30	1.13	1.20	....	....	....	1.13	34-34.9
35-35.9	....	$1.23	....	....	....	....	....	....	....	1.28	....	1.35	....	....	1.16	1.22	....	....	....	....	35-35.9
36-36.9	....	1.26	....	....	....	....	....	....	....	....	....	1.39	....	....	1.19	1.25	....	....	....	....	36-36.9
37-37.9	....	1.29	....	....	....	....	....	....	....	....	....	1.43	....	....	1.22	....	....	....	....	....	37-37.9
38-38.9	....	....	....	....	....	....	....	....	....	....	....	1.47	....	....	1.25	....	....	....	....	....	38-38.9
39-39.9	....	....	....	....	....	....	....	....	....	....	....	1.51	....	....	....	....	....	....	....	....	39-39.9
40-40.9	....	....	....	....	....	....	....	....	....	....	....	1.53	....	....	....	....	....	....	....	....	40-40.9

Playa Del Rey: (FOB Standard Pipe Line) 20-20.9, $0.80; 21-21.9, $0.84; 22-22.9, $0.87.
Wheeler Ridge: 22-22.9, $0.76; 23-23.9, $0.80; 24-24.9, $0.83.
Newhall, Kern River, Kern Front, McKittrick & Round Mountain: 14-14.9 $0.73.

LOUISIANA-ARKANSAS

Posted by S. O. Louisiana, May 22, '41

Gravity	Atlanta, Ark. et al.	Caddo, La et al.	Rodessa, La. et al.	Bunkie, La. et al.	Darrow, La. et al.	University, La. (Baton Rouge)
40 & above	$1.08	$1.18	$1.20	$1.30	$1.30	....
39-39.9	1.06	1.16	1.18	1.28	1.28	....
38-38.9	1.04	1.14	1.16	1.26	1.26	....
37-37.9	1.02	1.12	1.14	1.24	1.24	....
36-36.9	1.00	1.10	1.12	1.22	1.22	....
35-35.9	.98	1.08	1.10	1.20	1.20	....
35 & above	....	....	....	....	....	$1.36
34-34.9	.96	1.06	1.08	1.18	1.18	1.34
33-33.9	.94	1.04	1.06	1.16	1.16	1.32
32-32.9	.92	1.02	1.04	1.14	1.14	1.30
31-31.9	.90	1.00	1.02	1.12	1.12	1.28
30 & below	....	....	....	....	....	1.26
30-30.9	.88	.98	1.00	1.10	1.10	....
29-29.9	.86	.96	.98	1.08	1.08	....
28-28.9	.84	.94	.96	1.06	1.06	....
27-27.9	.82	.92	.94	1.04	1.04	....
26-26.9	.80	.90	.92	1.02	1.02	....
25-25.9	.78	.88	.90	1.00	1.00	....
Below 25	....	.86	.88	.98	....	....
24-24.9	.76	....	.88	....	.98	....
23-23.9	.74	....	.86	....	.96	....
22-22.9	.72	....	.84	....	.94	....
21-21.9	.70	....	.82	....	.92	....
Below 21	.68	....	.80	....	.90	....

Atlanta schedule includes Buckner, Lewisville, Magnolia, Village & Schuler (Jones Sand), Ark.

Caddo schedule includes De Soto, Sabine, Fouke, Homer, Miller Co., Nebo & Sugar Creek.

Rodessa schedule ncludes Cotton Valley & Shreveport (Cross Lake) ending with Below 25 at $0.88; Anse La Butte (Aug. 1, '41).

Bunkie schedule includes Eola, Olla, & South Olla.

Darrow schedule includes Bayou Mallet, Choctaw, Jeanerette, Lirette, N. & S. Crowley, Port Allen, Port Barre, Potash, Roanoke, & St. Martinville.

Big Creek, Dorcheat, McKamie Distillates (Sour) $1.15
Heavy Smackover Crude ..... .83
Cotton Valley Distillate 1.30
Cotton Valley (Holloway Sand Crude) 1.25
Lisbon Distillate 1.20

(Continued next column)

LOUISIANA-ARKANSAS (Cont'd)

Posted by Shell Oil Co., Inc. (May 20, '41)

Gravity	Iowa	Roanoke	Gibson
Below 20	$0.99	$0.94	$0.89
20-20.9	1.01	.96	.91
21-21.9	1.03	.98	.93
22-22.9	1.05	1.00	.95
23-23.9	1.07	1.02	.97
24-24.9	1.09	1.04	.99
25-25.9	1.11	1.06	1.01
26-26.9	1.13	1.08	1.03
27-27.9	1.15	1.10	1.05
28-28.9	1.17	1.12	1.07
29-29.9	1.19	1.14	1.09
30-30.9	1.21	1.16	1.11
31-31.9	1.23	1.18	1.13
32-32.9	1.25	1.20	1.15
33-33.9	1.27	1.22	1.17
34 & above	1.29	1.24	1.19

Iowa schedule includes Black Bayou & White Castle, La. fields.

Roanoke schedule includes Chalkley, La. field.

Gibson schedule includes S. Houma, Hester & W. Lake Verret, La. fields.

Happytown field, St. Martin Par., La. $1.15

Posted by Arkansas Fuel Oil Corp.
Urania, La. (May 22, '41) $1.15

Posted by Continental Oil Co. (May 21, '41)
Tepetate, La. $1.18
Ville Platte, La. 1.20
Lake Arthur, La. 1.18

Abbeville, La.

Below 36 $1.07	37-37.9 $1.11	39-39.9 $1.15
36-36.9 1.09	38-38.9 1.13	40 & above 1.17

CANADIAN FIELDS

Posted by Imperial Oil Limited Western Ontario (Nov. 6, 1939)

Petrolia ..... $2.10 Oil Springs $2.17

Turner Valley Crude Oil (July 16, '41)
(Prices FOB producer's tankage)

33-33.9 $1.35	44-44.9 $1.57	55-55.9 $1.79
34-34.9 1.37	45-45.9 1.59	56-56.9 1.81
35-35.9 1.39	46-46.9 1.61	57-57.9 1.83
36-36.9 1.41	47-47.9 1.63	58-58.9 1.85
37-37.9 1.43	48-48.9 1.65	59-59.9 1.87
38-38.9 1.45	49-49.9 1.67	60-60.9 1.89
39-39.9 1.47	50-50.9 1.69	61-61.9 1.91
40-40.9 1.49	51-51.9 1.71	62-62.9 1.93
41-41.9 1.51	52-52.9 1.73	63-63.9 1.95
42-42.9 1.53	53-53.9 1.75	64 & over 1.97
43-43.9 1.55	54-54.9 1.77	

Absorption Gasoline (July 16, '41)
90% Rec., 20 lb. Reid v.p. $2.28
90% Rec. 17 lb. Reid v.p. 2.44

ROCKY MOUNTAIN FIELDS

Posted by Stanolind Oil & Gas Co. (May 20, '41)

Salt Creek (except Tensleep crude), Midway & Dutton Creek, Wyo.

Below 29 $0.96	32-32.9 $1.04	36-36.9 $1.12
29-29.9 .98	33-33.9 1.06	37-37.9 1.14
30-30.9 1.00	34-34.9 1.08	38-38.9 1.16
31-31.9 1.02	35-35.9 1.10	39-39.9 1.18
		40 & above 1.20

Wyoming:		Wyoming:	
Tensleep Crude	$0.6785	Grass Creek Light	$1.00
Frannie Light	.70	GrassCreekHeavy	.50
Frannie Heavy	.47	Elk Basin	1.00
Hamilton Dome	.45	Iles, Colo.	1.07

Posted by Ohio Oil Co. (May 20, '41)
Elk Basin, Wyo. $1.00
Grass Creek, Wyo., Light 1.00
Rock Creek, Wyo. 1.15
Lance Creek, Wyo., (July 1, '41) 1.12

Posted by Continental Oil Co. (May 21, '41)
Ft. Collins & Wellington, Col.

Below 29 $0.96	32-32.9 $1.04	36-36.9 $1.12
29-29.9 .98	33-33.9 1.06	37-37.9 1.14
30-30.9 1.00	34-34.9 1.08	38-38.9 1.16
31-31.9 1.02	35-35.9 1.10	39-39.9 1.18
		40 & above 1.20

Canon City & Florence, Col. $1.05
Creek, Mont. 1.15
Big Muddy, Wyo., (May 30, '41) $1.08
Lance Creek, Wyo., (July 1, '41) $1.12

CLASSIFIED

Address all Blind Box Number ads to National Petroleum News, 530 Penton Building, Cleveland, Ohio, unless otherwise specified.

Wanted to Buy

3 or 4 compartment 2500 gallon transport tank with trailer. Furnish photograph and state condition of tank in replying. Address Box 227, Greenwood, S. C.

For Sale

Complete Pennsylvania Refinery. Two thousand barrel tube still, wax plant, filter house, tankage of all sizes. Available immediately. Complete or in part. Address Box No. 944, National Petroleum News.

One 3500 Gallon Transport For Sale, in good condition. Fall Creek Oil Co., Middletown, Indiana.

2—3000-gallon semi-trailer tank units: 1—5 compartment, 1—6 compartment. Address inquiries to United Petroleum Corporation, Philadelphia, Pa.

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"Position Wanted"—5 cents a word Minimum charge $1.00 per insertion.

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Specialists on Petroleum Products
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· PERSONALS ·

Before leaving on a 2-week vacation fishing—in northern Ontario, Canada, **G. W. Gebhardt,** Erie, Pa., United Oil Mfg. Co., telephoned NPN to get the low-down on what's likely to happen at Washington while he is away. The prospect, as outlined, caused him to arrange to have *Platt's Oilgram* sent him daily at camp.

* * *

A picked, 5-man golf team from the Chicago Oil Men's Club last week broke up a 2-year winning streak of the Wisconsin Petroleum Assn. when the 2 teams met during the Wisconsin association's golf tournament and powwow held at Lake Delton, Wis.

The match, close from start to finish, ended in an 8 to 7 score.

Flushed with victory, the Chicago oil men hope "to broaden these athletic activities by issuing challenges to other associations" and list Minnesota's Independent Oil Distributors Assn. as a possibility for the Chicago club's party at Rolling Green Country Club Sept. 18.

Lineup for this year's tournament:

	Score	Points Wis.	Cgo.
Henry Plane (C)	87	..	0
Dave Wilson (W)	80	3	..
Tiney Foresburg (C)	85	..	3
M. H. Teige (W)	91	0	..
Wilson Henry (C)	87	..	3
Al Breuch (W)	92	0	..
George Williams (C)	82	..	1
M. H. Kraus (W)	81	2	..
A. B. Franke (C)	89	..	1
A. J. Schierl (W)	83	2	..
		7	8

Dave Wilson, Madison, Wis., Pennsylvania Oil Co., again proved his prowess as a golfer when he turned in low score in the Wisconsin association's tournament to win the Pure Oil Trophy for the third time.

Below:
Golfers who represented Chicago Oil Men's Club and Wisconsin Petroleum Assn. at Lake Delton, Wis., tournament are, left to right: M. H. Teige, Stoughton, Wis.; Tiny Forsberg, Chicago; Henry Plane, Chicago; Wilson Henry, Chicago; A. B. Franke, Chicago; A. J. Schierl, Stevens Point, Wis.; George Williams, Chicago; Al Breuch, Madison, Wis.; M. H. Kraus, Stevens Point; and Dave Wilson, Madison

It wasn't Springfield and it wasn't midnight, but folks at Russell, Kans., were reminded not long ago of Vachel Lindsay's poem "Abraham Lincoln Walks at Midnight" when **Ed Dumler,** Phillips Petroleum Co.'s agent at Russell, let his beard grow to play a part in Russell's pioneer celebration of its 70th anniversary. Cutline of another photograph of Mr. Dumler, carried in Phillips' house organ *Philnews*, read: "You could have knocked the editor over with a five-dollar bill, folded once. . . ."

Ed Dumler

* * *

W. R. (Ray) Spindell, Tulsa, for the past 5 years associated with Skelly Oil Co. in the refinery sales and purchases department, has joined the staff of Tansel Oil Co. in the same capacity, according to **Miss E. M. (Bess) Blankenship,** acting head of the Tansel company. Ray Spindell has worked in the refining and sales divisions of the oil industry in the Southwest for the past 16 years.

* * *

D. Oty Groce, St. Charles, Mo., president of Groce Independent Oil Co., is mighty proud these days of a 17-jewel watch directors of the Missouri Independent Oil Jobbers Assn. presented him recently. The watch is an appreciation gift for "all he's done to further the interests of independent oil jobbers in Missouri", the directors said. Mr. Groce was the first M.I.O.J.A. president and was re-elected 3 successive years. Last year he turned over the presidency to **Vincent J. Smith** of South St. Joseph. Last week, Mr. Groce was appointed member of District 2 marketing committee to the Petroleum Co-ordinator's Office.

* * *

J. A. Fawcett, veteran Pennsylvania Independent refiner, celebrated his 80th birthday August 1. His old friends sent him wires and letters to his home at Oil City.

"Jim" Fawcett got into the oil business some 60 years ago and like so many Pennsylvanias, has been with it ever since. For years he was one of the partners of the Crystal Oil Works of Oil City. That plant has not been running crude oil since 1933. Mr. Fawcett has been looking after the sale of some products, however, since that time.

* * *

Merrill H. Utley is *still* working for Standard Oil Co. of Kentucky. This, despite NPN's firm statement that he was assistant district manager for Louisiana Standard in Mississippi (NPN Aug. 6, p. 48). Editorial Department says this is an awfully tough one to blame on a typographical error in the print shop.

* * *

Joseph Gordon is back again at his desk in Fenner & Beane's headquarters in New York, directing its petroleum department. He was "on loan" for a month as an oil consultant to OPACS, the price control agency at Washington.

* * *

J. J. Steitz, Jr. and **D. L. Barrett** have been appointed assistant managers of the fuel oil department of the Standard Oil Co. (N.J.) and affiliated Esso Marketers.

Mr. Steitz will manage all marine fuel sales and will be office manager. He joined the company in 1920 and has spent most of his time in the fuel oil department. Mr. Barrett, who joined fuel oil department in 1929 will manage industrial fuel and gas oil sales. Both men will be responsible for price and sales policy in their respective positions.

Company also announces that **R. B. Bedford, Jr.,** has joined fuel oil department to assist in fuel oil sales work with steamship lines.

J. J. Steitz, Jr. D. L. Barrett

What Is The Position of the Refiner In The Chemicals-from-Oil Field?

● The closer co-operation now being achieved between the refining and chemical industries in serving our national defense needs, is bringing to the forefront the question as to the extent to which a refining company may profitably engage in the chemical manufacturing business.

Some refiners entered the chemical field 20 years ago, by manufacturing isopropyl alcohol from cracking still gases.

More recently one or two of the larger refiners have organized a department to manufacture and sell chemicals while, within the past year, natural gasoline companies or the natural gasoline departments of large refiners have been called upon to supply low price chemical raw materials for the chemical manufacturers, including some, such as butadiene and neohexane, vital to the defense program.

The refiner may take one of three courses in solving the problem of his relationship to this new phase of oil refining. He may remain strictly a manufacturer and distributor of petroleum products. He may manufacture and sell organic chemicals as well as motor fuels and lubricating oils. He may combine with a large chemical manufacturer and organize a subsidiary company to manufacture chemicals from petroleum fractions. The indications are that the oil companies as yet are divided upon what course to pursue, since some of them are engaged in each of the three methods.

Some of the factors affecting the individual company's decision are the following:

1.—Refining is a big tonnage business at low prices per unit, while chemicals are small tonnage business at high prices per unit.

2.—Refiners handle essentially liquids or gases, while chemicals are essentially solid.

3.—Refinery product prices are subject to fluctuations, since they are for direct consumer use, while chemical markets, being principally for intermediate products used for a wide variety of consumer goods, are comparatively stable.

4.—Refiners' equipment is designed to manufacture products of fixed quality from any installation (cracking, dewaxing, decolorization, fractionation, coking, asphaltization, treating, etc.), while chemical plants may use the same equipment for a wide variety of organic chemicals (through chlorination, alkylation, sulphonation, amination, oxidation, etc.)

5.—Refiners' raw materials, crude and natural gas, are low priced, while chemical raw materials are usually higher priced.

6.—Refiners' experience in the manufacturing, marketing, purchasing, designing, researching, and management methods for organic chemical business is practically nil, while the organic chemical manufacturer has a background of 100 years in the literature and research of this field together with 25 years of manufacturing experience.

Typical examples of the chemicals from petroleum bases that might be utilized as raw materials for the manufacture of resins, explosives, synthetic rubber, etc., or that have their own commercial application are the following: Acetic acid, acetone, acetylene, ammonia, alcohols, benzene, butadiene, ethylene, glycerol, hydrogen, isobutylenes, isooctane, isopentane, mercaptans, toluene and many others.

The majority of petroleum companies in the U. S. so far have not entered the chemical field. They purchase all their own chemical requirements and sell a small percentage of their output as fuels, lubricating oils or raw materials to the chemical industry.

There are very few refiners who have a chemical sales department. Notable among them are the Shell Oil Co., and the Standard Oil Co. of New Jersey. The Shell company sells toluene, alcohol, ammonia, glycerine, etc., while the Standard of New Jersey is chiefly concerned with the manufacture of chemicals that may be utilized in the petroleum industry, such as alcohol and addition agents for lubricating oils. Some other companies have entered this latter field to a limited extent.

The third phase, a combination of chemical and petroleum manufacturers, has recently been entered into by a number of the larger companies. The country as a whole will be benefitted by this affiliation. The two industries, which are not competitive at present, should join hands; the oil companies to contribute the needed raw and intermediate organic compounds and the chemical industry the experience required. The personnel, equipment, and methods of each, should be available for a joint profitable enterprise.

The number of organic compounds that may be manufactured from petroleum hydrocarbons is almost unlimited. Even if we limit the starting material to natural gas, we find that it can be utilized to produce carbon black, hydrogen, and ammonia from methane; ethylene or acetylene from ethene; propylene from propane; isobutane, butylene, butadine, and alkymers from butane; isopentane, pentylenes, alkymers, etc., from pentane; and aromatics from the hexanes, heptanes, and octanes. In particular cases the same unit of the natural gasoline plant and same catalyst might be utilized to produce certain olefins or aromatics by changing the charging stock and operating conditions. The oil refiners now making a number of these organic compounds have even a wider field to choose from when and as there is a practical demand for them.

Refiners and natural gasoline plant operators who limit their activities to producing the raw materials for the chemical industry, will still play an important part in this new development of the oil business.

Research in Synthesis of New Products Features ACS Petroleum Division Program

THE manufacture in increasing volume of chemical products from petroleum sources, some vital in the national defense program, should stimulate interest in the coming meeting of the Petroleum Division of the American Chemical Society, in Atlantic City, Sept. 10 and 11. Its sessions will be held in connection with the 102nd general meeting of the Society, Sept. 8-12.

It is perhaps in recognition of the closer co-operation now being achieved between the petroleum and chemical industries that an oil technologist, S. W. Ferris, Philadelphia, chief chemist of Atlantic Refining Co., has been selected chairman of the executive committee of the ACS, which is responsible for organizing and conducting the coming meeting of the Society.

The 24 papers to be presented before the Petroleum Division include several which discuss the extensive research work carried on in recent years to identify and determine the characteristics of the constituents of petroleum and natural gas which are the sources of these new chemical products. Two of the papers deal with the determination of aniline point, which measures the aromatic content of naphthas. They give a glimpse of one aspect of the work done in recent years on the production of these materials from petroleum, which has culminated in the plants now building to manufacture pure toluene for explosives from petroleum.

Research in alkylation, in important use by oil companies today, to produce the large volume of high-octane aviation gasoline required by planes in military service will also be reported. Papers to be presented on the stability of certain hydrocarbons, as a means of predicting their densities, and on their viscosities, reflect the work done by petroleum technologists to furnish the refiners with more specific information on the characteristics of the hydrocarbons they are dealing with. Other papers will tell of the research work done in recent years in the improvement of motor oils by the use of additives of varied nature, which has enabled petroleum lubricants to meet satisfactorily the severe performance requirements of modern automotive engines.

The importance of this present research work to the future commercial development of the oil industry was discussed recently by Hugh W. Field, assistant manager of the research and development department of Atlantic Refining Co., in a report made public by the Philadelphia Section of the American Chemical Society, which will sponsor the coming meeting in Atlantic City. He said:

"While research workers are concentrating their efforts on guns and tanks, synthetic rubber, toluene, planes and high test aviation gasoline, they are gaining knowledge which will form the basis of spectacular advances in peacetime science and industry.

"A vast number of new chemical intermediates and finished products from petroleum, an extensive array of chemicals from other sources used in petroleum refining and, finally, significant improvements in the quality of the items furnished for general public use, all these are the promise for the future, based on the trends of research chemistry in the petroleum industry today.

"The petroleum chemist, in the course of his working under tremendous pressure for national defense, is learning to make the chemical molecules in his crude petroleum 'jump through the hoops' and with this knowledge will produce, in peacetime, materials for production of everything from perfumes to plastics, at lower cost and in greater abundance than ever before."

The papers to be presented before the Petroleum Division, at the Atlantic City meeting, are:

Oil Papers to be Presented at the ACS Meeting

1. Part I.—*The Determination of the Solubilities of Gases at High Temperatures and High Pressure by the Rotating Bomb.* Part II—*The Determination of Critical Temperatures by the Rotating Bomb,* by V. N. Ipatieff and G. S. Monroe, Universal Oil Products Co.
2. *High Temperature Alkylation of Aromatic Hydrocarbons,* by A. N Sachanen and A. A. O'Kelly, Socony-Vacuum Oil Co.
3. *Laboratory Evaluation of Some Factors Causing Lubricating Oil Deterioration in Engines,* by R. E. Burk, E. C. Hughes, W. E. Scovill and J. D. Bartleson, Standard Oil Co. of Ohio.
4. *The Molecular Volume of Liquid Alkanes at Corresponding Temperatures,* by Gustav Egloff and Robert C. Kuder, Universal Oil Products Co.
5. *Determination of Mixed Aniline Points of Hydrocarbon Solvents,* by B. H. Shoemaker and J. A. Bolt, Standard Oil Company (Indiana).
6. *Determination of the Aniline Point of Dark Petroleum Oils,* by Bruce B. Carr and M. S. Agruss, Pure Oil Co.
7. *Isolation of 1, 2, 3, 4-Tetramethylbenzene, 5, 6, 7, 8-Tetrahydronaphthalene, 1-Methyl-5, 6, 7, 8-tetrahydronaphthalene and 2-Methyl-5, 6, 7, 8-tetrahydronaphthalene from Petroleum,* by B. J. Mair and A. J. Streiff, National Bureau of Standards.
8. *Free Energies and Equilibria of Isomerization of the Butanes, Pentanes, Hexanes and Heptanes,* by Frederick D. Rossini and Edward J. R. Prosen, National Bureau of Standards, and Kenneth S. Pitzer, University of California.
9. *A Simple Viscometer for Research and Control,* by Frank C. Croxton, Battelle Memorial Institute.
10. *Determination of Inorganic Salts in Crude Oil,* by E. P. Rittershausen and R. J. DeGray, Socony-Vacuum Oil Co.
11. *Mechanism of Low Temperature Catalytic Alkylation of Isoparaffins,* by P. D. Caesar and A. W. Francis, Socony-Vacuum Oil Co.
12. *A Laboratory Machine for Investigating Corrosion of Bearings,* by S. K. Talley, R. G. Larsen and W. A. Webb, Shell Development Co.
13. *Evaluation of Granular Adsorbents for Petroleum Refining,* by Ogden FitzSimons, the Barrett Co., R. C. Amero and R. G. Capell, Floridin Co.
14. *Composition of Catalytically Cracked Gasolines,* by J. R. Bates, S. S. Kurtz, Jr., F. W. Rose, Jr. and I. W. Mills, Sun Oil Co.
15. *Isomerization Equilibrium among the Branched Chain Pentenes,* by R. H. Ewell and P. E. Hardy, Purdue University
16. *Naphthene Ring Analysis,* by M. R. Lipkin and S. S. Kurtz, Jr., Sun Oil Co.
17. *Determination of Phosphorus in Lubricating Oil,* by Harry Levin, F. P. Farrell and A. J. Millendorf, The Texas Co.
18. *Determination of Free Sulfur in Lubricating Oil,* by Harry Levin and Ervin Stehr, The Texas Co.
19. *Calculation of Front End Volatility of Gasoline Blends,* by N. B. Haskell and D. K. Beavon, The Texas Co.
20. *The Prediction of the Octane Numbers and Lead Susceptibilities of Gasoline Blends,* by DuBois Eastman, The Texas Co.
21. *Apparatus and Methods for Precise Fractional Distillation Analysis.* VI. Theoretical Investigation of Low-Temperature Fractional Analysis, by Walter J. Podbielniak, Podbielniak Centrifugal Super-Contactor Co.
22. *The Absolute Viscosity of Cis and Trans Decahydronaphthalene,* by Wm. F. Seyer and John D. Leslie, University of British Columbia.
23. *Oxidation Characteristics of Pure Hydrocarbons,* by R. G. Larsen, R. E. Thorpe, and F. A. Armfield, Shell Development Co.
24. *The Problem of the Holdup Effect in Batch Fractionation,* by Arthur Rose, C. R. Bailey and F. L. Bertram, Pennsylvania State College.

Abstracts of Some Petroleum Division Papers

Below are presented brief outlines of the contents of some of the papers to be presented before the coming meeting of the Petroleum Division of the American Chemical Society, as submitted by their authors, and received by Refining Technology in time for presentation in this issue. They are representative of the varied research subjects which will be discussed at the meeting.

"PART I—The Determination of the Solubilities of Gases at High Temperatures and High Pressures by the Rotating Bomb. Part II—The Determination of Critical Temperatures by the Rotating Bomb," by V. N. Ipatieff and G. S. Monroe, Universal Oil Products Co.

The apparatus is a modified Ipatieff type rotating bomb provided with lines from which vapor phase and liquid phase samples may be drawn at the temeratures and pressures of the determinations. The solubilities are determined from the composition of the liquid phase samples. The solubilities of methane in benzene were determined at temperatures as high as 225° C. and at pressures up to 150 atmospheres and the solubilities of propane in benzene as high as 190° C. at 37 atmospheres.

A study of the pressure-temperature relation was made for pure substances (propane, hexane, cyclo-hexane and benzene) in the same type of apparatus employed in Part I. Points of discontinuity appeared on the pressure-temperature curves at the critical temperature of the pure substance investigated. Similar experiments applied to two-component systems also showed points of discontinuity on the pressure temperature curves. Analysis of samples drawn from the bomb indicated that the temperature of discontinuity corresponded to the critical temperature of the systems investigated.

"Laboratory Evaluation of Some Factors Causing Lubricating Oil Deterioration in Engines," by R. E. Burk, E. C. Hughes, W. E. Scovill and J. D. Bartleson, of The Standard Oil Co. (Ohio).

Laboratory procedure is outlined which subjects the oil to elevated temperature, to air and to metals. The ratio of metal area to oil volume is adjusted to the value which exists in a particular automobile engine in which the performance of the oil is to be evaluated. Oil is circulated over the metal catalysts by means of jet propulsion by an air stream. The volume of air used per unit volume of oil is adjusted to that value which passes through the crank case of the chosen engine at a particular speed. The temperature of the test will vary in accordance with the operating temperatures in the desired engine. The time of the test is adjusted to give the same oil break down as occurs in a given period in the particular engine.

For certain oils and engines substantially quantitative comparative results have been obtained in the laboratory test with respect to lacquer formation, viscosity increase, and naphtha insolubles. The test appears capable of estimating the stability of the oil in a quasi quantitative way and in addition gives preliminary information on corrosion and detergency to be expected in an engine.

The test is not suggested as a substitute for final full scale engine testing.

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Chairman of the coming 102nd meeting of the American Chemical Society, in Atlantic City, in September, is S. W. Ferris, chief chemist since 1936 of Atlantic Refining Co. He is a member of many technical societies and author of publications concerned principally with lubricating oil manufacture.

Chairman of the Petroleum Division of the American Chemical Society this past year has been J. K. Roberts, Chicago, director of research, Standard Oil Co. (Indiana). He attended University of Kentucky, secured his master's degree from Massachusetts Institute of Technology in 1928 and since has been connected with the Standard of Indiana.

Secretary of the Petroleum Division, American Chemical Society the past year has been Cary R. Wagner, Chicago, manager of research and development, Pure Oil Co. He holds many patents covering thermal polymerization, vapor phase cracking and dewaxing methods, and has published articles on these subjects.

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The influence of roughened bearing surfaces upon lubrication is reported as practiced at one large automobile plant. Some data on effect of surfaces roughened by chemical means, from another source, is included **R-262**

The temperatures attained by lubricating oil in the laboratory dynamometer engines, as related to their actual automobile road test temperatures **R-267**

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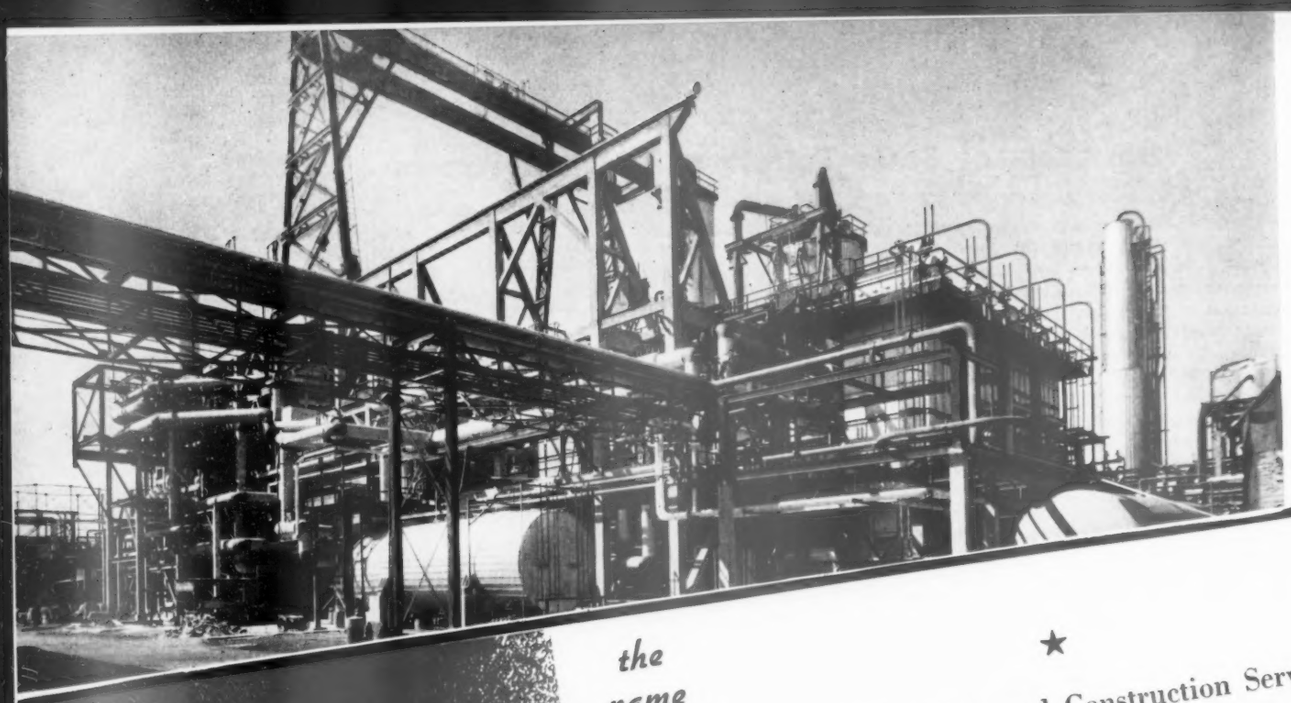

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Abstracts of Some Petroleum Division Papers

(Continued from page R-259)

"The Molecular Volume of Liquid Alkanes at Corresponding Temperatures" by Gustav Egloff and Robert C. Kuder of Universal Oil Products Co.

In the design calculations of fractionating towers in the oil industry, the molecular volumes of liquid alkanes at corresponding temperatures is of value. The comparison of the molecular volumes of hydrocarbons at their boiling points or melting points suffers from the fact that these temperatures are not exactly constant fractions of the critical temperatures. When the normal alkanes are compared at exactly corresponding temperatures between their melting points and boiling points, it is found that the molecular volume is an additive function with no complications from the alternating term, or $V = a + bn$ (where V represents the molecular volume and n the number of carbon atoms in the molecule) a is a linear function, and b a parabolic function, of the reduced temperature. A resulting practical application is the prediction of the density of butane below its boiling point.

"Isolation of 1, 2, 3, 4-*Tetramethylbenzene*, 5, 6, 7, 8-*Tetrahydronaphthalene*, 1-*Methyl-*, 6, 7, 8-*Tetrahydronaphthalene and* 2-*Methyl*-5, 6, 7, 8-*Tetrahydronaphthalene from Petroleum," by Bezalel J. Mair and Anton J. Streiff, National Bureau of Standards.*

This is a second report of the work on hydrocarbons in the kerosine fraction of petroleum, which is being carried on at the National Bureau of Standards as part of the work of the American Petroleum Institute Research Project 6.

In this work, the four hydrocarbons, were separated by azeotropic distillation, followed by crystallization, of narrow boiling fractions of aromatic material which had been separated by extraction and adsorption from that part of the petroleum which distilled between 114° to 144° C. at 56 mm Hg (corresponding approximately to 200° to 230° C. at 760 mm Hg). "Best" lots of each of these four hydrocarbons from petroleum were prepared, and synthetic lots of three of them were purified for purposes of identification and determination of properties.

Values of certain physical properties of these four hydrocarbons, all extrapolated to zero impurity, were determined.

"A Simple Viscometer for Research and Control," by Frank C. Croxton, Battelle Memorial Institute.

For the measurement of viscosity the petroleum industry has used, for many years, the Saybolt viscometer. The accuracy attainable with this instrument is not great and in many cases it is difficult for one laboratory to check the results of another without frequent standardization. There has been a gradual transition toward the use of kinematic viscometers of the capillary-tube type but their adoption has not been as rapid as would be the case if the complete kinematic viscometer assembly were less complicated. This paper will describe an instrument which is designed to overcome such an objection. The viscometer proper is of the type previously described by Zeitfuchs and possesses the advantages of accuracy of measurements and simplicity of construction.

"Isomerization Equilibrium among the Branched Chain Pentenes," by R. H. Ewell and P. E. Hardy, Purdue University.

Equilibrium was established among 3-methyl-1-butene, 2-methyl-1-butene and 2-methyl-2-butene at several temperatures over activated alumina catalysts. The isomerized mixtures were analyzed in an automatic fractionating column using spiral screen packing. From the results a number of thermodynamic data were computed.

"Composition of Catalytically Cracked Gasolines," by J. R. Bates, and F. W. Rose, Jr., Houdry Laboratories of the Catalytic Development Co., and S. S. Kurtz, Jr., and I. W. Mills, Sun Oil Co.

Since the advent of commercial catalytic cracking of petroleum to produce gasoline there has been much speculation concerning the reason for the high octane number of this material as a motor fuel in comparison with fuels produced by thermal cracking, and those produced from the virgin crude by simple distillation. The work presented here shows that this high octane is due to the presence of a large excess of isoparaffins over normal paraffins in the lower boiling portions of the gasoline and to a high content of aromatic compounds in the higher boiling fractions. These relations are not affected by the olefin content of the gasoline which may vary over a wide range with varying conditions of cracking.

"Naphthene Ring Analysis," by M. R. Lipkin and S. S. Kurtz, Jr., of the Sun Oil Co., is made up of the following:

A method is described for calculating the weight per cent of paraffin plus paraffin side chain in any mixture of paraffins and naphthenes. The method is dependent on density and molecular weight, or density and the temperature coefficient of density, and is more accurate and involves fewer assumptions than the molecular weight specific refraction method of Waterman. Using density and molecular weight, analysis of 143 naphthenes of one to 4 rings per molecule, and ranging from cyclopropane to cyclooctane type rings, shows an average deviation of ±7%.

"Theoretical Investigation of Low-Temperature Fractional Distillation Analysis," by Walter J. Podbielniak, Podbielniak Centrifugal Super-Contactor Co.

The sixth of a series of papers on analytical fractional distillation bearing the series title, "Apparatus and Methods for Precise Distillation Analysis." This paper is a theoretical investigation from the standpoint of fractional distillation theory of low-temperature fractional distillation analysis. Importance of this analytical method is recognized, in the development and control of alkylation, catalytic cracking and polymerizing processes so vital in increasing the production of aviation gasoline. Results of a study of the fundamentals of the method are presented, as well as of its theoretical possibilities vs. actual applications to the difficult problem of cracked C-4 fraction analysis, now being accomplished by low-temperature fractionation. The graphical computation aid and other charts presented will probably be of general usefulness in all analytical laboratory distillation, and in general distillation calculations.

Calculation of Front End Volatility of Gasoline Blends. N. B. Haskell and D. K. Beavon, The Texas Co.

Methods for calculation of front end volatility of gasoline blends from data normally available on the individual components are presented. The methods are applicable to a wide variety of blends including those of refinery gasolines with natural gasoline, butane fractions, and pentane fractions. The method is based on a general relationship between the RVP and the 10% evaporated temperature, and a chart for the prediction of the ASTM distillation loss from the C_4 and C_5 content of the stock.

Prediction of the Octane Numbers and Lead Susceptibilities of Gasoline Blends. DuBois Eastman, The Texas Co.

Octane numbers and lead susceptibilities are seldom additive, with the result that the prediction of blending results with satisfactory accuracy has been difficult. Empirical methods of calculation are presented which have been found to be reasonably satisfactory with a variety of gasoline types. Octane values are predicted by means of the relative octane sensitivities (the CFRR octane minus the CFRM octane) of the stocks blended while the lead susceptibilities are predicted from the relative sensitivities and the lamp sulfur contents.

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11 New Tables in Revised "Handbook of Chemistry"

Much data of practical value to petroleum chemists and engineers will be found in the 4th edition of Lange's Handbook of Chemistry, recently published. In its 1700 pages are contained all the subject matter of the previous edition, much of it completely rewritten and extended. The new tables and extensions have necessitated adding 85 pages to the book.

The tables offered in the 4th edition for the first time include: synthetic rubbers, correction of the boiling point for pressure, calculation of the boiling point of organic compounds, qualitative spectrographic analysis, sensitive lines of the elements, Hammonds cuprous oxide and copper equivalents of sugars, conversion of specific gravity to density, azeotropic mixtures, tank and pipe capacities, logarithms of factorial n. factorials, binomial coefficients.

The table in the third edition on Wave Length of the Principal Lines in the Emission Spectra of the Elements has been replaced with two new tables, Qualitative Spectrographic Analysis and Sensitive Lines of the Elements.

The book is compiled and edited by Norbert Adolph Lange, lecturer in organic chemistry at Cleveland College of Western Reserve University, assisted by Gordon M. Forker, of the Harshaw Chemical Co., Cleveland, with an appendix of mathematical tables and formulas by Richard Stevens Burington, associate professor of mathematics at Case School of Applied Science. Lange's Handbook of Chemistry sells for $6, and can be bought through NATIONAL PETROLEUM NEWS, Cleveland.

Better Lubrication with "Roughened" Motor Bearings, Auto Plant Reports

BETTER lubrication and increased life for motor bearings is being secured, in engines built in the Buick plant at Flint, Mich., by an artificial "roughening" of the surfaces of the crankpin and main bearing journals on the crankshaft, in place of finishing them until they approach "mirror smoothness".

For the last two months, standard practice in the shop has been to leave the journal surfaces with a degree of roughness that could be felt with the thumb. The average depth of the surface depressions, or irregularities, is around 60 micro (millionth) inches, as measured with a profilometer. Former practice called for a finish with surface depressions of only 5 to 6 micro-inches.

The theory back of this practice, according to Chas. A. Chayne, chief engineer for Buick, is that the microscopic scratches act as tapered oil grooves and serve to lead oil to the spot on the bearing which is carrying the heaviest load. Where the journal surface is entirely smooth, the oil on the bearing has a tendency to be deflected or dispersed from the point where the load is heaviest, perhaps causing a complete breaking of the oil film on the bearing surface at this point. When the oil film is broken, it is also believed that the minute accumulations of oil within the irregularities tend to restore the film faster than is possible with the smooth surface.

The theory behind the ultra smooth finish (one manufacturer's finish method allows surface irregularities of only 1.5 to 2 micro-inches depth) is that in operation, a complete and unbroken film of oil is formed on the steel which carries the load on the bearing journal and prevents metal-to-metal contact and failure of the bearing.

There has been no change in the bearing metal used, or the type of steel in the crankshaft, since this new shop practice was adopted. The main bearings are high lead babbitt, the proportions running 5% tin, 10% antimony and the rest lead. The company adopted a lead type bearing some time ago, in anticipation of the difficulties in securing tin which the needs of the defense program might impose on auto manufacturers. It first used a bearing metal with 10% tin and this had been gradually reduced to the present 5% without any noticeable effect, before the practice of "roughing" bearings was adopted. The steel used in the shaft is SAE 1045, heat treated, a .40 to .50% carbon, plain carbon steel, the same kind used in many automobile plants for this purpose.

Nor has there been any change in the motor oil used in the plant, and on the proving ground. It is a standard SAE 10 grade in the winter and SAE 20 after March 1, the plant reports.

Laboratory tests show no difference in the characteristics of the oil in use on bearings with the new surface finish, as compared with the oil used for the same number of hours in bearings as formerly finished. In the engine tests in the laboratory, temperature of the oil in the crankcase is held at 200° F. It is believed the temperature in the body of the bearing does not get over 250° F., but temperatures reached at the bearing surface are not known.

While the Buick engineers and metallurgists may not know, as they admit, just what the scientific reasons are for the increased bearing life and better lubrication secured with the "roughened" bearings, they do have a great deal of data from dynamometer tests and road tests on the proving ground to show that practical results are being secured.

For example, where breakdown of the bearing was formerly secured after 65 hours of dynamometer testing, the bearings with the roughened surfaces have withstood well over 150 hours. In special high speed track tests, the connecting rods on the big engines, with cast iron pistons, are said to have been in good shape after 20,000 miles and those on the small engines after 28,000 miles. Various tests have been made where the individual journals on the crankshaft have been finished with various degrees of irregularities in the surface, from 5 to 80 micro-inches. Both dynamometer and road tests have been made on cars with such a shaft installed and the degree of wear on the individual bearing checked. The position of the roughened journals on the shaft has been changed. In every case the bearings standing up the best have been those where the journal surface had been finished with a roughened surface.

The Buick engineers regard these results as of particular significance now, as cast iron pistons are being used in place of aluminum pistons, supplies of the latter metal being restricted to more important defense needs. The cast iron pistons weigh 75% more than the aluminum and thereby increase the load on the main bearings. Possible extension is seen in this practice of leaving minutely roughened surfaces, where metal parts in motion come in contact with other parts. Already it is practice in the Buick plant to leave cylinder walls roughened to the extent of 12 to 20 micro-inches, as against a former maximum allowable depth of surface depressions of only 8 micro-inches. It is said that this provides faster initial break-in of piston rings, since it allows the two surfaces to adjust themselves better than where the cylinder wall is finished to a high degree of smoothness. Whether this method is of more value than making a good break-in remains to be determined. Studies are being made to determine the possibilities of applying the same method to the finish of other parts. It is proposed to try the treatment with oscillating type bearings, such as wristpins.

The Buick engineers started to experiment with roughening the surfaces of steel coming into contact with surfaces of non-ferrous metals in bearings, after their studies of artificially roughening, by chemical treatment, of steel surfaces coming into contact with the same metal, where seizing results, under certain conditions. In this latter practice, which has been in use for some years, the surface is etched and soft coating material is applied to the metal surface to absorb the oil, which acts to minimize the initial scuffing of moving metal. It was questioned whether the longer life for parts thus treated might not be in part due to better lubrication secured from the etched or roughened surfaces.

Some crankshafts were built in which the journals had varying degrees of roughness produced mechanically. Four journals on a test were ground with a nonglazed, free-cutting wheel which gave deeper pits than the usual ground finish showed. After grinding, the journals were polished only lightly with abrasive cloth. The shaft was then assembled in a motor and given a low-speed endurance run on a dynamometer, involving 5 cycles of 12 hours at 2800 r.p.m. and one hour at 4200 r.p.m., three cycles under full load and two under three-quarter load. After tearing down the motor it was discovered that

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the rod bearings on the rough journals were in better shape than those on the smooth journals.

The next step in the plant was to make up a series of 7 crankpin sections and finish them to varying degrees of smoothness, from the smooth finish, which was the former production practice, to the rough ground finish before polish. The average profilometer readings of the 7 sections, were, in micro-inches: 5.0-6.5; 21-23; 35-49; 68-83; 88-98; 99-110 and 105-115. Various tests disclosed that increasingly beneficial results in lower bearing wear were achieved up to about 80 micro-inches average depth of surface depressions. In standard production practice now the company is finishing the surfaces to 60 micro-inches average depth.

No new equipment was required in the shop to finish the journal surfaces on the crankshaft to the degree of "roughness" adopted as standard, and a saving in time was secured from that required to machine, grind and lap the surfaces to the former mirror-finish. Grinding wheels are dressed after every 20 crankpins, instead of after every 10 pins; the journals are machine lapped only 5 to 10 seconds, instead of every 50 seconds, as formerly.

Oil Company Developed Process For Etching Bearing Surfaces

THE theory that lubrication of steel surfaces that are in contact while in motion is aided where there are infinitesimal depressions in the surface, in place of an entirely smooth finish, has been advanced for some time, in connection with the development of methods of treating steel surfaces.

Standard Oil Co. of California, in 1938, announced before the Society of Automotive Engineers its Feritex metal treating process, now offered under the trade-marked name Surfide, with patents pending. The principle involved in this process is treating the surface of cylinder walls, rings, pins, bearings or other parts exposed to pressures and requiring lubrication, in a solution of chemicals. The chemical bath consists of a 50% (by weight) aqueous solution of sodium hydroxide, to which is added 1% (by weight) of sulfur, at 250 to 255° F.

This removes selectively certain constituents of the steel, such as ferrite, to a depth found desirable, leaving instead of a highly polished surface without irregularities, one covered with a network of microscopic pits, grooves and slits but still preserving the level of the main portion of the surface. A depth of 80 micro-inches is typical of these depressions. The process is said not to affect the properties of the metal obtained by heat treatment, nor cause distortion of parts.

It is said that the ferritic and some other particles in the metal matrix, which appear to be most susceptible to the chemical's action, are the portion most likely to be torn from the steel surface in the break-in period and carried along between the bearing and journal or other rubbing surfaces, causing scratches in the surface.

It is also claimed that another beneficial result of this treatment is that a porous or blotter-like surface is formed which improves the spreading tendency of the lubricant. The oil is retained in the depressions from which the grains of metals have been dissolved and maintains a film of lubricant under conditions which destroy the film on a smooth surface. Rings tested on extreme pressure machines, with straight mineral oils, are said to show a load-carrying capacity, or film strength, for treated rings 6 times that of untreated rings.

Data on film strength and wear, of Surfide treated and untreated surfaces, obtained in an SAE tester, utilizing conventional Timken steel cups as frictional members, are given below, as published by the Standard Oil Co. of California. These laboratory results were later confirmed in actual service which included field tests in diesel engines in normal tractor service.

Film Strength Tests

	Load	Relative Film Strength
Untreated	1000 lbs.—scuffed	100
Surfide Treated	5700 lbs.—no scuffing	570+

	Loss in Weight of Specimens—Grams—6-Hour Tests at 500 Pounds Load	Relative Wear %
Untreated	1.5412	100
Surfide Treated	0.0683	5

The advantages of this method of treating steel surfaces where lubrication is required was discussed as follows by an engineering authority, before the American Society of Mechanical Engineers:

"Quite recently material improvements have been made in providing rapid and safe break-in by the use of chemical treatments on the cylinder and ring surfaces. The purpose of these chemicals is to endow the reciprocating faces with extreme-pressure characteristics and encourage

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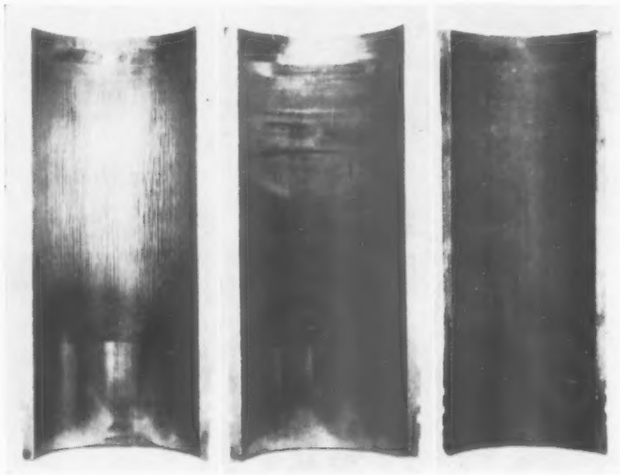
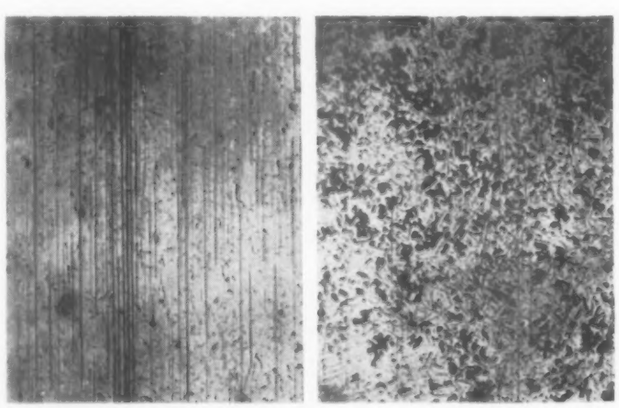
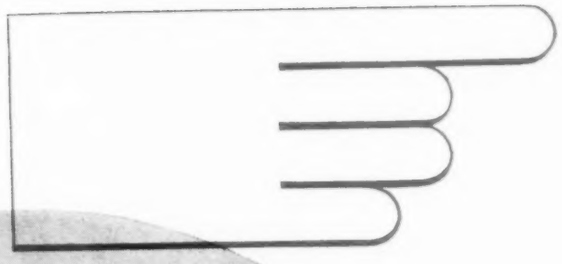


The upper photos are of cast iron cylinder surfaces, the two at the left untreated, that at the right treated by Standard Oil Co. of California's Surfide method. The scuffing shown on the liner at the left is caused by ferritic material in ring and liner welding under pressure onto the rings, where it is carried up and down and gradually scuffs the entire liner. The untreated liner in the center shows irregular, worn areas caused by non-uniform contact of rings and liner. The liner on the right shows the uniform ring contact obtained in a six-hour break-in with treated parts

The photos below show untreated and treated cylinder liner surfaces, when viewed magnified 25 times. That at the left is a normal worn-in surface, untreated, after a six-hour break-in. The treated surface, right, shows the evenly scattered dark areas, which are oil reservoirs, after the six-hour break-in cycle and the white areas are smooth, worn-in plateaus





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the rapid spreading of the lubricant during the break-in period. By transforming the cylinder surface to a blotter-like material, the lubricant is absorbed quickly and adheres tenaciously, thus permitting a rapid form of mild abrasion which produces superior wearing surfaces. By this process, piston rings which normally required about 100 hours to obtain full ring-face conditioning and 100% bearing face can be run in to comparable surface contacts in 3 hours."

Tests Showed Matt Finish Provided Best Lubrication

IN CONNECTION with studies of the lubrication of steel sprayed surfaces, which are described as highly but finely porous, Harry Shaw, consulting engineer of England, came to the conclusion that it was not true in all cases that the best surface for bearing and cylinder and all rubbing surfaces was the smoothest surface that could be produced.

He described, before a technical meeting at the College of Technology, in Manchester, in 1937, effects of minute defects in a surface upon oil flow. This work is said by the Metallizing Engineering Co., Inc., New York, to be authoritative today. Mr. Shaw said:

"Numerous tests were made on bearing surfaces that had been lapped to a mirror finish, when it was found that, if run at high speeds and light loads, the surfaces, instead of retaining this polish, took on a matt or etched appearance. It was found by examining the bearing surfaces at short intervals in running, that this etched appearance developed at first in the vicinity of a small surface defect and then spread out like a growing honeycomb from this as center."

It was found, he went on, that this etched appearance was really composed of a network of saucer shaped depressions which varied in proportions and size according to the material of the surface and to a lesser degree upon the speed and viscosity of the oil. A typical size of the saucer shaped depressions was 10 micro-inches deep, 50 micro-inches long at right angles to the axis of the bearing and 30 micro-inches wide. It was discovered that the etching always spread out from minute surface defects.

"To investigate the effect of such a minute defect in a surface upon the oil flow the apparatus shown in Fig. 1 was developed," he continued. "This consists of a tube composed of 4 pieces of glass into which the test piece or specimen S could be placed. Oil under pressure was admitted through the opening A so that it would flow over the surface of the test specimen. The pressure of the oil was controlled by sliding one piece of perforated metal B on another piece C, so that the effective perforations could be varied in size. This method had to be used in preference to using a single variable orifice, for this would affect the general stream line flow of the oil.

"Artificial defects such as D were made in the soft white metal surfaces to create the effect of a surface defect in a bearing surface. So that the oil flow could be observed, a dye was introduced through a fine capillary tube E which could be raised and lowered and turned so as to introduce the dye at any desired position in the oil stream.

"By this means it was found that a defect in a surface causes the formation of a local oil swirl. Thus, if Fig. 2 (1) depicts the action of the oil film in a bearing, the oil in striking the defect forms a swirl, as at (2). The mild abrasive action of the oil causes this oil swirl to gouge out a small depression (3) raising slightly the material around the edge of the depression. This raised metal would then appear to act as another surface defect and this, combined with the first swirl or turbulence, forms a second swirl (4) which proceeds to gouge out a second depression, and this action spreading, the whole surface ultimately becomes covered with little saucer-shaped depressions (5). This building up of the depressions was actually watched in the apparatus described, but it was found necessary to mix a very fine abrasive with the oil to speed up the action.

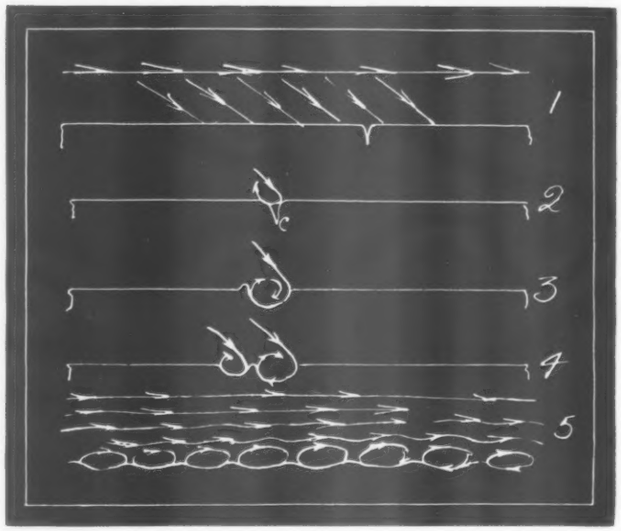

Fig. 2. Formation of local oil swirls by surface defects

"When a number of depressions had been formed, the general oil film passed over the little local oil swirls, which appeared to act as oil rollers, creating apparently little resistance to the flow of the oil.

"Careful observations of the coefficient of friction of mirror finished bearings running under light loads, showed that, if the friction at the commencement of running was A, Fig. 3, then after a very short period, it dropped to B representing a running-on or bedding effect and then the coefficient very gradually dropped to the level C, which coincided with the complete formation of the matt finish. After a brief run under a heavier load, the matt finish was destroyed by a polishing action and it was found that the friction was higher than the level C when the light load was returned to, the lower friction obtaining again when the matt surface had reformed. Bearing surfaces produced by artificially etching a mirror finish by mild chemical attack were found to have a friction curve more of the dotted form in Fig. 3".

From the results of these experiments the author concluded that the matt finish for bearing surfaces provides the most efficient lubrication; but that the action of heavy loads is to polish out this finish, except under certain prescribed conditions.

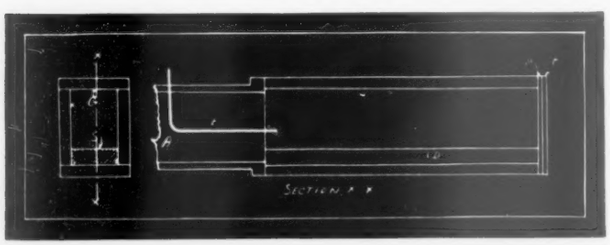

Fig. 1. Apparatus for noting alteration in oil flow caused by surface defects

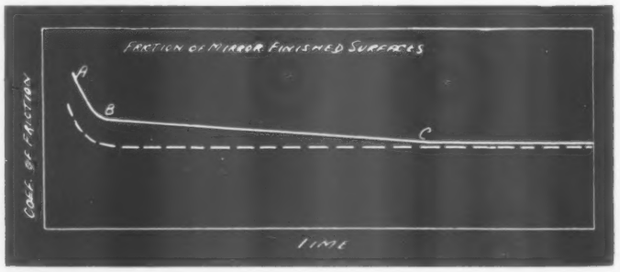

Fig. 3

Oil Temperatures in Severe Road Tests Lower than Those in Engine Stands

By B. E. Sibley* and H. C. Baldwin*

Engine and oil temperature data are presented as recorded in road tests conducted by the Continental Oil Co. under severe operating conditions on the Arizona desert, and compared with data from laboratory engine tests under controlled conditions.

Despite the higher engine speed and atmospheric temperatures encountered with the road test fleet, the oil temperatures were below the controlled temperatures of this company's laboratory tests, which are similar to the "Chevrolet Engine Test" procedure. Though the engine interior temperatures were lower, a greater degree of lacquering in the road test engines was observed; the conclusion being this was accounted for by the duration of the test fleet operations, as compared with the length of runs of laboratory tests.

This paper was presented at the Summer Meeting of the Society of Automotive Engineers, Fuels and Lubricants Session, by Mr. Sibley, under the title, "Review of Temperatures, Road Test Engines."

EXTENSIVE engine lubricating oil test work has been conducted on the road as a companion activity with engine-stand or dynamometer tests. These tests provide interesting engine and oil temperature data. The various road fleet tests included low temperature, slow speed, and intermittent operations, also an intermediate or moderate condition, and principally consisted of much work at high speed under the extremely high atmospheric temperatures encountered during June and August in the desert type country of Southern Arizona.

Engine-stand work has mostly involved high oil temperature and high speed. It is believed the procedure that has generally been followed throughout the country is quite identical with the 4,000 mile or 66 2/3 hour test known as the "Chevrolet Engine Test" by G.M.R. The cycle of our dynamometer engine tests includes the equivalent to a road load and speed of 5,000 miles at 60-62 m.p.h.

Our engine test procedure was well established before the advent of the "Chevrolet Engine Test". We had considered and do make *examinations* at 3,000 and 4,000 miles. It has been found that the additional 1,000 miles beyond 4,000 is quite valuable. That additional 1,000 miles is, figuratively speaking, "the straw that breaks the camel's back." *More change in engine cleanliness* condition occurs *in that last* 1,000 *miles* than in the preceding 4,000 miles. A product that might be rated as good at 4 000 miles may not receive a "passing" rating at 5,000 miles. Our road test fleets have been operated on test procedures calling for 10,000 and up to or above 12,000 miles.

The schedule of engine battery work calls for 24 hours per day. Engine shutdowns have not shown any appreciable or definite difference when compared with continuous operations. Continuous engine work has been fol-

*Continental Oil Co

Part of the fleet of cars used by Continental Oil Co. on road tests on the Arizona desert, to secure data on motor oil characteristics under high speed and atmospheric temperature operating conditions. Photo was taken at the base in Chandler, Ariz.

Seen through the rear window is the Alnor pyrometer used for checking road temperatures at 8 locations on the engine

lowed to save time; otherwise the total time and expenses would have been much greater.

It will be understood, of course, that the engine dynamometer work has been used as "semi-final" bottlenecks preceding the much more expensive and time consuming conditions associated with the operation of road test fleets.

The schedule of the road test fleets at high speed and high temperature involved operating only under extremely severe conditions. In general the warmed-up test fleet started on the road at approximately 8 a.m. and was off the road at 5 p.m. Finish time varied on different tests.

The units of road test fleets are "turned" through the test-driver positions; i.e., operators are in the same rotation but test units are rotated each driving shift. This procedure has always been followed to cancel out any differences in drivers, despite the fact that we use only experienced test drivers. A "pilot" driver is used as the lead driver. He sets the pace, per schedule. Instructions call for a spacing of ¾ mile between test units. You can just about set your watch by arrival of test units. We have been fortunate in securing experienced drivers from another organization, hence they were not permanent employes. That feature fitted in with the general requirements of our programs.

Alnor pyrometers were used for the indicated temperature readings at scheduled points. Drivers momentarily slow to 25 m.p.h. while recording the indicated temperatures. This generally occurs near a turn-around or refueling location. On the road test fleets eight temperatures were recorded, per Fig. 1 and with references to tables shown later.

Different makes of engines were involved in these extensive programs. Some of the same make of engines used in the engine laboratory were used in standard equipment of road test units, hence comparisons of temperatures during the two types of operation are of interest. In addition the road test fleets used other standard engines that are of interest in view of their volume and lubricating importance.

It is quite important that it be realized that in the engine laboratory tests the operating conditions call for controlled operations to result in an extremely high temperature in the oil header. In the road fleet tests the temperatures were recorded as encountered, under extremely high atmospheric temperature and high speed road conditions.

The first test section was from Litchfield Park to a point 7.4 miles beyond Casa Grande, Ariz. and return; 254 miles per shift or 508 miles per day. The unit test mileage was 12,151. Test fleet headquarters during August were located at Chandler for the purpose of getting away from some of the 45 m.p.h. speed controls. The August road fleet tests involved 576 miles per day for passenger units or a total of 10,080 miles, and 492 miles per day, or a total of 10,086 miles for the heavily loaded, heavy truck units. In the August test, 19 units, all told, were used.

During the fleet road test in June, the average speed was 65 m.p.h. Owing to speed controls, this really resulted in approximately 70 m.p.h. for much of the greater distance outside the speed controlled area. During August the mileage of the restricted area was much less; the average, however, was approximately 65 m.p.h. In August our speed was very much limited by tires, generators and batteries.

Our engine-stand operating instructions call for an oil header temperature of 280-285° F. In the last year we have made comparisons of that with the "dip stick" temperature of 280° F. + or − 2° as called for in the "Chevrolet Engine Test" procedure by G.M.R. and find the comparison shown in Table No. 1, which shows a difference of approximately 16° F.; hence we in our operations have been testing at a temperature of approximately 16° F. higher than prescribed in the generally followed procedure. We are not sorry as we have developed a considerable amount of interesting information.

TABLE NO. 1

Engine Laboratory

	Engine No. 1	Engine No. 2
Dip stick (end) temperature °F.	301	291
Oil gallery temperature °F.	284	276

Table No. 2 shows the average temperatures, by multiple test groups, of three of the high production, popu-

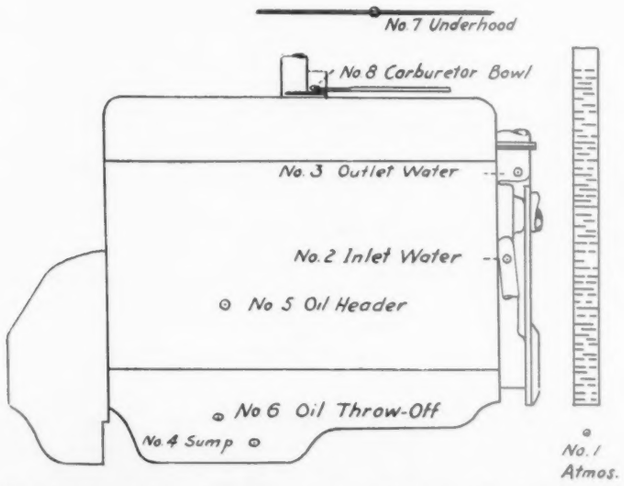

Fig. 1—The eight temperatures recorded in the fleet road tests

Taking cylinder measurements in preparation for a test run. The cylinder gauge used was a Swedish instrument graduated to one ten-thousandth of an inch

TABLE NO. 2

Thermocouple Averages by Groups, Litchfield Park, Arizona

1 Atmos.	2 W—In	3 W—Out	4 Oil Sump	5 Oil Header	6 Oil Throw-off	7 Underhood	8 Carb.
			Car Group "A"				
103.6	177.3	185.9	206.3	199.7	211.2	140.6	145.4
			Car Group "B"				
103.6	179.8	188.7	249.9	213.6	250.4	121.8	137.1
			Car Group "C"				
103.6	178.8	184.1	210.1	202.6	210.9	138.1	138.2

TABLE NO. 3

Thermocouple Averages by Groups, Chandler, Arizona

1 Atmos.	2 W—In	3 W—Out	4 Oil Sump	5 Oil Header	6 Oil Throw-off	7 Underhood	8 Carb.
			Car Group "A"				
96.01	163.9	174.0	202.5	198.1	210.6	129.4	132.3
			Car Group "B"				
96.01	163.0	171.4	234.4	198.3	235.8	110.3	125.3
			Car Group "C"				
96.01	166.0	170.5	208.0	192.0	203.7	123.5	125.1
			Truck Group "D"				
96.01	148.4	165.0	184.6	157.9	190.4	123.5	130.2

lar priced cars. These data are from our first Arizona tests during June, 1941.

In Table No. 3 we show the engine temperatures in the second Arizona tests. These tests were of greater daily mileage. Atmospheric (shade) temperatures on an average were lower, but as a whole the severity of the test was comparable with that shown in Table No. 2.

Table No. 4 reveals companion figures on two dynamometer engines of the same make as shown in group "B" of Tables 2 and 3. It will be noted that the actual road temperatures were appreciably lower than the engine-stand temperatures.

TABLE NO. 4

Engine Laboratory

Same Make Engines as Road Test Group "B"

Water In °F.	Water Out °F.	Oil Sump °F.	Oil Header F.
174	184	290	280

Engine speed 3233 r.p.m. = 63 m.p.h., 32 h.p.

The road test fleets were checked and operated under stock engine specifications. Aside from the driver, each car carried 180 pounds of sacked gravel, a supply of gasoline for refueling at the turn-around point, five gallons of cooling fluid, and an emergency supply of oil. Tire pressures were checked each day.

In the final preparation of road test fleets, tire equipment is standardized. Wheel balancing and alignment are checked. New spark plugs, all of the same make, are adjusted and installed. Distributors are carefully checked by use of a Distrib-U-Scope and other ignition details are checked to a standard setting. Carburetion is checked by the use of a Cambridge exhaust gas analyzer and manifold vacuum. Valve springs are checked to assure uniformity.

During the first Arizona or Litchfield Park tests, the maximum atmospheric temperature encountered was much above the average of 103.6 shown in Table No. 2. That is because temperatures were read at the desert turn-around point and upon arrival at test fleet headquarters; hence there was a mid-morning and a late afternoon temperature reading which tended to lower the average reading. The maximum atmospheric (shade) temperature reported during that test was 122° F., at one of the higher temperature stretches of the desert. Some checking of oil temperatures occurred across these stretches of maximum atmospheric temperature and were compared with the oil temperatures at the scheduled point of instrument reading. There was no appreciable difference. Repeated checking resulted in the conclusion that after the oil had arrived at a high temperature, it did not appreciably change even though the atmospheric temperature was lower at the point where the scheduled instrument reading occurred.

During the second Arizona tests out of Chandler, the maximum atmospheric temperature noted was 120° F. and at about the same place on the desert of the above mentioned 122° F. during the first Arizona tests. The same condition pertaining to no appreciable change in oil temperature was noted as above described.

By referring to Car Group "B" of Table No. 2, it will be noted there was a rise of approximately 36° F. in oil temperature between the oil header and oil sump. The volume of oil circulated per minute may vary from two to six gallons. Considering a very conservative figure of two gallons per minute, a minimum of seven pounds per gallon, and .5 as the specific heat of the oil, shows that an appreciable amount of horsepower is lost through high oil temperature—$14 \times .5 \times 36 \times 60 = 15{,}100$ B.t.u./hr.

One h.p. hr. equals 2,546 B.t.u.; hence $\frac{15{,}100}{2{,}546} = 6$ h.p. It will be appreciated this is indeed a very conservative figure.

Referring to thermocouples numbers four and five of Car Group "B" of Table No. 3, we find the same spread in temperature that is shown in Table No. 2 for that car group.

These extensive road tests reveal that, despite the higher engine speed and higher atmospheric temperatures, the oil temperatures with the road test fleets were a great deal below the controlled temperatures of engine laboratory tests. This is of interest in comparison with the "Chevrolet Engine Test" procedure.

Engine interior cleanliness is adversely affected by higher oil temperatures. Increasing the temperature very greatly accelerates the rate of oxidation. Fenske, Stevenson, Lawson, Herbolsheimer and Koch* have shown the effect of oxidation or oxygen absorption is practically doubled for each ten degrees Centigrade rise in temperature.

Palmer and Pope† have stated: "In estimating the oxidation rate of a lubricant, we anticipate that the life of the lubricant will be cut in half for every 15° F. rise in temperature, all other conditions being equal." A study of engine test results in the engine laboratory and on the road definitely reveals that, other things being equal, dirtier engine interiors will be encountered as the oil temperatures are increased. In view of what experience has shown in that respect, we were able to make some valuable comparisons between engine laboratory and road test units lubricated with the same group of oils.

Test fleet engines were in agreement with the laboratory engines in rating the oils used. Results with the road test engines, however, showed more differences between certain oils than indicated by the engine laboratory tests. In general the oils were rated less favorably by test fleet engines when compared with the engine-stand results.

Oil Temperatures in Road Tests Reported

Lacquering and engine dirt were the principal items contributing to this difference. That is of more than passing interest in view of the materially lower engine interior temperatures observed with the test fleet engines.

Study of the whole condition resulted in the conclusion that the greater duration of test fleet engine operations accounted for dirtier engines and especially with reference to lacquer. That is supported by results observed with the laboratory engines, and as previously mentioned with reference to the effect of an additional 1,000 miles of engine operation.

It is agreed that we depend upon the lubricating oil to conduct heat away from the high temperature surfaces. The severity of that problem has been greatly increased in the last few years. In general it may be expected that an appreciable amount of horsepower will be absorbed as a result of using the oil as an interior engine coolant. There is much opportunity for improved design whereby this desired functioning of the oil may be secured without subjecting the oil to extremes in aeration and maximum temperatures, which increases the overall severity upon the oil and introduces more maintenance problems.

Table No. 3 shows an appreciable spread between the underhood temperatures of the different groups of test units. Car Group "A" shows the highest underhood and lowest oil sump temperatures of the passenger car group. It will be noted the average underhood temperature of Car Group "C" was 6° lower, while the oil sump temperature was 5½° F. higher when compared with Car Group "A". Car Group "B", with an underhood temperature materially below that of the other two groups, consistently shows very much higher oil temperatures.

The units of Truck Group "D" were heavily loaded and to the extent they were very far down on the overload springs. The daily ton-miles of those units would in general appreciably exceed the worst that is encountered in commercial operations. They were operated at a speed that resulted in their overhauling and passing of passenger cars other than those involved in the test operations. In view of that load and speed condition, it is interesting to note that Table No. 3 reveals an underhood temperature pretty much the same as that of the passenger car test units. The oil temperatures, however, were very much lower in these high speed, heavily loaded units when compared with those of the passenger car groups.

Referring to the fifth paragraph following Table No. 4, in which reference is made to a rise of approximately 36° F. in oil temperature going from the oil header to the oil sump, and the further reference to the amount of horsepower involved in the heating of the oil: We should not be too concerned with the horsepower loss as we all recognize some cooling is necessary. The point we want to emphasize, however, is that we should not go too far in the oil cooling of the engine or to a point where additional maintenance problems would be introduced. We agree with H. C. Mougey‡ that it is highly important that the crankcase oil should be warmed up quickly and that care should be exercised to decrease maximum crankcase oil temperatures which may affect continued operations.

Table No. 3 shows that when passenger cars are consistently operated under the speed, load and temperatures mentioned, we encounter temperatures exceeding those in some truck units. In general practice truck or bus units are consistently operated at a higher percentage of their rating and over greater durations of time when compared with passenger car units; hence the lubricating oil is confronted with the severity of greater exposure to heat and oxidation in the heavy duty units than it is in passenger cars in normal service. A lubricant that would be satisfactory for the consistently operated heavy duty units should also be expected to be satisfactory for the lubrication of passenger car engines where and when unusual operations result in conditions approaching the severity of those encountered with heavy duty units.

*Industrial and Engineering Chemistry—April 1941—Page 516.
‡Mechanical Engineering, December 1940—"Industrial Lubrication," page 891.
‡Heavy Duty Motor Oils—A.P.I. Meeting, Chicago, Nov. 14, 1940.

Abstracts from Current Literature

"PRESENT STATUS OF COMBUSTION RESEARCH"

Paper under the above title, by Ernest F. Fiock, of the Bureau of Standards, 7.5 pages, 5 figures, SAE Journal, August, 1941. Presented originally National Aeronautic Meeting SAE, Washington, March, 1941.

Recent contributions to knowledge of the process of combustion in the engine cylinder reviewed briefly and lines of attack which promise to lead to further improvements in control of gaseous combustion as a source of power summarized as follows:

1. Finding new mixtures inherently more powerful or more economical;

2. Finding new methods of altering the mass rate of burning, the completeness of combustion and, hence also, the rate of increase in pressure;

3. Preventing preignition in spark-ignition engines and facilitating ignition in compression-ignition engines;

4. Suppressing detonation.

"LUBRICATION OF SEVERE-DUTY ENGINES (DIESELS)"

Paper under the above title, 16 pages, 14 figures, 21 tables, by J. G. McNab, W. C. Winning, B. G. Baldwin, and F. L. Miller, Esso Laboratories, Research Division, Standard Oil Development Co., SAE Journal, August, 1941. Originally presented SAE annual meeting, Detroit, January, 1941.

Differences are pointed out in diesel and gasoline engine design and operation which result in significant differences in heat flow and distribution in the engine, which may, in some cases, cause emphasis to be put on such problems as ring-sticking, wear, and piston scuffing, and in others, on sludge formation, varnish, coking, and so on.

Naphthenic and paraffinic oils of 40 and 100 viscosity index, respectively, to which have been added small amounts of a detergent-dispersing-inhibitor type additive developed by the Esso Laboratories, were subjected to extensive laboratory and field tests. Results of some of these tests were compared with results of similar tests on typical naphthenic and paraffinic mineral oils, commonly used for diesel lubrication under moderate conditions of speed, load, and temperature where extreme detergency and oxidation stability are not required; on another detergent-dispersing-inhibitor blend in a naphthenic base oil and on a commercial inhibited oil of the paraffinic type used in diesels requiring extreme oxidation stability but only a little detergency.

The research forming the basis of this paper was carried out principally on three of the better-known makes of diesel engines, selected because they represented three rather distinct types of engine design and because each manifested certain of the characteristic lubrication problems which, considered together, included practically all of those peculiar to the diesel engine.

The authors conclude that no blanket recommendations will provide optimum lubrication practice in all engines and services. In general, engine manufacturers' oil-change schedules should be followed and in no case should an additive blend be changed less often than a conventional oil, until the operator has become familiar with the new product.

AIME Petroleum Division Transactions Published

The transactions for 1940 of the petroleum division of the American Institute of Mining and Metallurgical Engineers have been published in book form. While much of the material has previously appeared elsewhere, its compilation in bound volume makes the work an excellent reference book.

This volume is the 16th of the Petroleum Development and Technology series of the AIME. It contains papers and discussions presented before the division at New York, Feb. 12-15, 1941; Los Angeles, Oct. 17-18, 1940; Tulsa, Oct. 24-26, 1940, and the petroleum statistical report for 1940.

The 6 chapters are devoted to production engineering, engineering research, petroleum economics, domestic and foreign production, education and refining. The book may be secured from AIME headquarters, 29 West 39th St., New York, the price is $5.

Yields of Oil From U. S. Coals By Hydrogenation are Reported

RESULTS obtained in an investigation of the production of liquid fuels from coal by the hydrogenation process first invented by Friedrich Bergius and subsequently modified and developed on a commercial scale by the I. G. Farbenindustrie in Germany and by Imperial Chemical Industries in England are described in a recent technical publication of the U. S. Bureau of Mines*.

While coal cannot compete economically today with petroleum as the raw material for the latter's products, some time in the future hydrogenation may be called on to serve as an auxiliary source of gasoline, diesel fuel, solvents, among other products. "It is possible", states the report, "that, contrary to the situation in Europe, where about 1,000,000 tons per year of gasoline and diesel fuel are produced by coal hydrogenation, the first commercial exploitation of this process in the U. S. will have for its main purpose the production of bulk organic chemicals such as phenol, cresols, xylenols, benzene, toluene, xylene, solvent naphtha, naphthalene, tetrahydronaphthalene, and pyridine bases."

The importance of a long-range program of fundamental research, to establish a sound groundwork for the evaluation of foreign developments in synthetic liquid fuels and to obtain data on the amenability of the various kinds of American coals and lignite to the hydrogenation process, is pointed out, in the foreword to the report by A. C. Fieldner, chief, technologic branch and chief engineer, coal division, of the Bureau of Mines.

"By initiating a research program at this time", he stated, "enough progress will have been made in determining the yields and quality of liquid products obtainable from various coals so that, when the commercial need arises, American industry will be in position to select the most suitable coals and make rapid progress in establishing this new industry. It is possible also that progress in better understanding of the chemistry of hydrogenation processes will materially reduce the cost of hydrogenation."

Tables 1 and 2 contain a summary of yield data on coals assayed in an experimental hydrogenation plant constructed at the Central Experiment Station of the Bureau, at Pittsburgh. This was a small, continuous unit capable of hydrogenating 100 lbs. of coal in 24 hours. The last column of Table 1 shows that (except for the Mary Lee coal) there is a steady decrease in the yield of oil per ton of coal, as mined, with the decreasing rank or grade of coal. The 11th column of Table 1 shows that this decrease in yield of oil with rank is much more gradual when it is calculated on a moisture- and ash-free basis.

A summary of the Bureau's coal-hydrogenation work to January, 1940, as contained in this report follows:

"1. A detailed and critical survey of all available literature on coal hydrogenation was made and is revised periodically. (The 76 references given in the chapter of the report, Review of Literature, constitute a good bibliography on the subject of coal hydrogenation.—Ed.) The present paper emphasizes the influence of important factors such as vehicle, agitation, catalyst, temperature, pressure, and rank of coal, and gives a brief historical sketch.

"2. A continuously operating experimental plant with a capacity of about 100 pounds of coal per day was constructed. This experimental plant, which is described in this paper, includes apparatus for the production of hydrogen from natural gas and steam; compressors to supply hydrogen at pressures up to 6000 pounds per square inch; a coal-preparation plant, including crusher, drier, ball mill,

*Technical paper No. 622, of U. S. Bureau of Mines, "Hydrogenation and Liquefaction of Coal", by H. H. Storch, L. L. Hirst, C. H. Fisher and G. C. Sprunk, Central Experiment Station, Bureau of Mines, Pittsburgh.

TABLE 1

Summary of Experimental-Plant Assays in Yield of Oil By Hydrogenation from U. S. Coals

Coal No.	State	Rank[1]	H₂O, per cent of coal as mined	Per cent of dry coal: Organic residue predicted	Per cent of dry coal: Organic residue obtained	Per cent of dry coal: Ash	Oil yields, per cent by weight: Moisture- and ash-free coal	Oil yields, per cent by weight: Dry coal	Oil yields, per cent by weight: Coal as mined
1	Alabama	H.V. A. bit	4.2	9.0	9.8	10.2	60	54	52
2	Pennsylvania	do.	1.6	7.8	4.0	5.7	70.5	65	64
3	Illinois	H.V. B. bit	7.8	5.4	4.9	7.1	70.5	65	60
4	Washington	H.V. C. bit	9.6	.5	1.1	4.1	68.5	66	59
5	Colorado	Subbit. B	24.1	8.0	5.6	5.4	63	60	45
6	Montana	do.	25.1	8.2	6.7	10.1	60	55	40
7	Wyoming	do.	23.2	2.6	3.1	5.1	68.5	64	49
8	North Dakota	Lignite	34.9	7.6	9.7	12.3	54.5	50	31
9	do.	do.	39.5	6.6	4.7	7.4	52	49	32

[1] Key: H.V. A bit.—High-volatile A bituminous coal.
H.V. B bit.—High-volatile B bituminous coal.
H.V. C bit.—High-volatile C bituminous coal.
Subbit. B—Subbituminous B coal.

TABLE 2

Summary of Experimental-Plant Assays, in Per Cent by Weight of Moisture- and Ash-Free Coal

Coal No.	Oxygen	Hydrogen used	Tar Acids: Distilling to 235° C.	Tar Acids: Distilling 235° to 330° C.	Tar bases distilling to 330° C.	Total aromatics	Gas
1	5.0	8.5	3.9	3.5	2.3	32.8	27
2	6.8	9.0	7.6	3.5	2.8	40.9	21
3	10.0	8.5	4.4	7.0	1.3	37.1	17
4	12.5	7.6	4.9	8.1	3.2	27.7	22.5
5	16.4	9.7	6.2	6.0	2.6	28.2	26.5
6	16.2	7.5	6.9	6.9	1.8	26.4	19
7	16.9	8.5	7.8	7.1	2.8	25.4	25
8	19.4	8.0	5.3	6.1	1.3	23.5	28
9	21.2	7.0	8.0	6.1	1.8	22.1	23

and coal-oil paste mixer; high-pressure liquid pumps; high-pressure vessels in which the combination of coal and hydrogen proceeds; centrifugal machinery for separating the ash and unreacted coal from the oil product; automatic high-pressure gas regulators; automatic liquid-discharge traps; special valves for discharge of heavy-oil slurry; automatic gas-analysis and gas-density apparatus; gas holders; high-pressure gas-storage cylinders; and a variety of miscellaneous equipment and tools. Attached to the experimental plant is a chemical laboratory in which the oils produced are analyzed, and small-scale experiments are made in batch autoclaves on the influence of the catalysts, temperature, and pressure on coal hydrogenation and related reactions.

"3. A quantitative procedure for the hydrogenation assay of coal was developed during a year of work with one coal in the experimental plant. Detailed data on the influence of temperature, pressure, contact time, and gas-circulation rate on the oil yields from Pittsburgh-bed coal are presented. Mass balances for total material input and for oxygen, nitrogen, and sulfur are discussed.

"The coal-hydrogenation assay thus developed comprises the determination of optimum conditions for the maximum yield of oil which are consistent with the complete regeneration of the tar-oil used to make a paste with the ground coal to facilitate pumping into the high-pressure reaction vessels. The oil products of the assay contain about 20% gasoline, 70% oil of medium viscosity and boiling range, and 10% heavy oil of high viscosity and high boiling range. About 25% of the oil product is phenolic, and about 60% of the remaining neutral oil is aromatic and 40% a mixture of equal parts of paraffins and naphthenes.

"4. Data relating to the assay of the following coals are presented and discussed. (See Table 1)

"The yields of oil range from 64 to 31 tons per 100 tons of coal, or 160 to 78 gals. per ton of coal as mined. This spread in yield is due largely to the increase in moisture and oxygen content of the coals with decreasing rank. The ultimate yield of gasoline from these coals may be easily estimated, for the conversion of the medium oil, obtained in the assay, into gasoline is readily accomplished by well-known methods, and the yield of gasoline is about 85% by weight (tonnage basis) and 100% by volume (gallon basis).

"Little, if any, trend with rank of coal is observable in the percentage of hydrogen used, based upon the moisture- and ash-free coals. However, the hydrogen used per ton of oil produced increases from about 0.12 ton for bituminous coals to 0.15 ton for lignites.

"The yield of tar acids boiling below 235° C. is 4 to 8 per cent of the moisture- and ash-free coals, or 3.5 to 5.0 per cent of the coals as mined. With some exceptions this yield increases with decreasing rank. The yield of tar acids boiling at 235° to 330° C. is about the same as that of low-boiling acids. It is estimated that the yield of tar acids boiling below 235° C. could be increased by 25 per cent if the higher-boiling acids were recycled.

"The yield of aromatic hydrocarbons increases regularly with increasing rank of coal from 22% (of the moisture and ash-free coals) for lignites to 41% for high-volatile A bituminous coal. This spread would be 13.5 to 37.5% when based upon the coals as mined. The yield of olefins ranges from 2 to 6% and that of saturates from 12 to 24% of the moisture- and ash-free coals with decreasing rank of coal.

"5. A review of previous work on the chemical composition of coal-hydrogenation products is given. Analytical data are presented that indicate the chemical nature of the constituents of the oil products from the coal-hydrogenation assays. The low-boiling tar acids contain about 10 per cent phenol, 40 per cent cresols, and 50 per cent xylenols. These are of commercial importance in the plastics industry. The neutral oils boiling below 210° C. contain the following approximate amounts (in volume per cent) of the hydrocarbons listed below:

Benzene	1.5
Toluene	2.1
Xylene	6.3
Cyclohexane plus Methylcyclohexane	6.1
Dimethylcyclohexane	4.5
Tetrahydronaphthalene	13.9
High-flash naphtha or Polymethyl benzenes	65.6

Electric Control Systems Surveyed

A report on electric telemetering and supervisory-control systems in use or available in this country, including a discussion of interconnecting circuits suitable for such purposes, has been published by the American Institute of Electrical Engineers. All known commercial sources of telemetering and supervisory-control apparatus have been included. Tabulations giving comparative data are designed to enable a prospective or existing user to determine the type of apparatus best suited to his requirements. Copies may be secured from AIEE headquarters, 33 W. 39th St., New York, at 40c for individual copies, with a 20% discount for quantities of 10 or more mailed to one address.

French Engineer in U. S.

Rene Berg, president of the Rene Berg Co. of Paris, which formerly represented many U. S. companies in providing refining equipment in France, is now in this country, having spent 39 days on the ocean in crossing to Trinidad. Until the armistice he was a captain in the French army, stationed on the Maginot line. He plans to enter the engineering equipment business in this country, for processes utilizing natural gas.

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